



Instructor's Guide to Property, Bargaining, and Transaction Costs

Laboratory implementation, theoretical foundations,
experimental evidence, and variants

Behavioral and Experimental Economics Research Lab
Department of Economics



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<https://beer-lab.org/>

How to use this guide

This guide supports the preparation, implementation, and classroom discussion of the family of property, bargaining, and transaction costs prepared for the Behavioral and Experimental Economics Research Lab (BEER Lab) at the Department of Economics of Tecnológico de Monterrey. It is intended for instructors with different levels of familiarity with experimental and behavioral economics.

The document offers three reading paths. The **quick guide** is enough to launch a session. The operational chapters explain each screen used by instructors and students. The conceptual chapters present the theories, predictions, and empirical findings needed to lead the post-game discussion.

Access instructions and common screens are explained once. Each variant then focuses only on what changes relative to the basic game: configuration, group size, decisions, predictions, relevant outcomes, and academic literature.

Author

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For the instructor

This guide follows the English-language interface. Spanish configurations use the same logic. Never project individual codes or connect outcomes to names, student identification numbers, or seats in the room.

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Teaching purpose and organization

1.1 Family summary

Purpose	Relate initial entitlements, bargaining, and resources.
Experimental unit	Pairs; four-person groups under collective consent.
Participants	Multiple of 2 for pairs; multiple of 4 for collective consent.
Suggested duration	45 to 60 minutes including instructions, decisions, and discussion.
Basic edition	One encounter; ten with fixed or reassigned partners.
Extended edition	Thirteen ten-encounter configurations.
Decision	Proposal and response; collective votes; activity with fixed payment.
Outcome	Fresh 100 ECU endowment per person and accumulated balances.
Topics	property rights; bargaining; transaction costs; consent; private information; collective decision making.
JEL	K11; D23; C78; C92.

https://propertyrights.beer-lab.org/room/property_en

1.2 A legal question with observable consequences

An enterprise wants to perform an activity that increases its account but reduces another person's balance. The institutional response can take different forms. Activity may require the affected person's consent, remain available unless that person pays to stop it, or require compensation fixed in advance. This game makes those consequences observable through actual decisions and accounts. Its central question concerns the relationship between an initial entitlement, opportunities to bargain, the costs of agreement, and the final distribution of resources. Students first encounter a clear procedure and later use their decisions to discuss its economic and legal meaning.

The positions are called E and V to keep the participant screens neutral. E receives the benefit of activity, while V bears its reduction. These labels describe accounts rather than social identities or comprehensive legal categories. Some extensions have three affected positions, V1, V2, and V3. Depending on the selected configuration, E proposes, responds, or chooses activity. V may respond, propose, or receive fixed compensation without an acceptance decision. Every active position is occupied by a participant. The instructor does not play a judge, and an automated response does not replace a student's decision.

After the activity, students should be able to calculate the outcome of a proposal, identify the consequence of disagreement, and distinguish a transfer from resources created or destroyed. They should recognize why a technical gain of twenty units does not guarantee an agreement, why collective decision rules change the protection provided by an individual refusal, and why receiving compensation does not necessarily imply consent. These learning outcomes concern calculation and explanation. They are not measured by whether participants choose a particular amount or accept the proposal preferred by the instructor.

This family is an original teaching adaptation with discrete amounts and one proposal per encounter. The Law plan provides a thematic reference, while production follows the BEER Lab skill's criteria. The game does not reproduce a published experiment verbatim or implement the law of a particular jurisdiction. Its institutions are explicitly announced hypothetical rules. That simplicity isolates mechanisms, but also limits interpretation. There is no courtroom hearing, real physical damage, unrestricted communication, or sequence of counteroffers. Explain those boundaries during the discussion without introducing theoretical labels into the participant's decision screens.

For the instructor

Before play, explain the operating rules and the ECU unit. Reserve the terms Coase theorem, efficiency, and property rule for the discussion. Participants should initially understand what their decisions do, without receiving strategic advice about what to offer or accept.

1.3 Selecting a teaching route

The basic edition provides three routes in each language: one encounter, ten encounters with fixed partners, and ten encounters with reassigned partners. They share the same values and bilateral procedure. The choice determines how much time the experience requires and whether a continuing relationship becomes part of the discussion. One encounter introduces accounts and V's ability to prevent activity. Ten encounters create a trajectory worth examining, but they do not make the repeated decisions of a person independent observations. Select the route before opening the session and distributing participant links.

The extended edition contains thirteen configurations in each language. Each has ten encounters and changes a specified feature: initial entitlement, agreement cost, proposing position, visibility of values, number of affected people, collective approval threshold, or fixed compensation. Four-person configurations keep their groups together; the remaining extensions reassign partners. A broad set of prepared configurations does not mean that a class should play them all. It allows the instructor to select a comparison that serves a question while retaining sufficiently explicit rules for participants to explain what occurred.

An introductory class can begin with one basic encounter and an account reconstruction. If time permits a second session, compare bilateral consent with a low agreement cost or compensation fixed at forty. A property-rights class can use the four entitlement and proposer combinations. An information class can compare public and private values with identical distributions. A collective-choice class can compare unanimity and majority. Each route needs a reason for the comparison. Running many variants without a guiding question makes it harder to separate the consequences of a rule from changes in people, states, and session history.

The provisional duration is twenty-five to forty minutes for an introduction and forty-five to seventy minutes for repeated play with discussion. These are operating estimates pending a classroom pilot. Reading speed, class size, and the slowest group's waiting time will matter. The application does not impose a bargaining clock, and ten encounters are not guaranteed to finish within a fixed period. When time is short, select the one-encounter configuration at the outset. Abandoning a

ten-encounter session midway produces a different experience and incomplete trajectories that should not be presented as the prepared repeated design.

1.4 Classroom preparation and private decisions

Every participant needs a separate browser window and a stable connection to the session server. The instructor needs another window for administration and the report. Bilateral demonstrations use four participants in two pairs; collective demonstrations use eight participants in two groups of four. Classroom enrollment must be divisible by two or four, respectively. An observer should not enter as a participant because that would occupy a position with an actual decision or account. Observers can follow the instructor's projection when feedback begins, after the decisions that projection might influence have ended.

Ask participants to remain silent and decide individually. Someone who needs assistance should raise a hand and wait. Appropriate assistance clarifies an instruction or resolves a connection problem. It does not recommend a proposal or response. In particular, do not tell one pair the mutually beneficial interval while others remain uninformed. That changes the information supplied and the bargaining experience. If a general ambiguity appears, briefly pause and provide the same clarification to everyone without reporting another group's actions. The clarification should describe consequences rather than suggest how to maximize an account.

All amounts are expressed in ECU and represent balances in the teaching activity. Each encounter starts with a fresh endowment of one hundred per person. The application does not automatically transfer real money. If a course uses incentives, the instructor must establish and communicate that arrangement before play; this family does not secretly select an encounter for payment or implement an unannounced lottery. The final accumulated balance sums all active encounters. It should not be described as market income or directly translated into a legal loss, entitlement valuation, or damages estimate outside the model.

The administrative report initially hides its aggregates, and the instructor chooses when to reveal them. Keeping them hidden during decisions prevents a projected average from guiding later proposals. The report shows group statistics rather than a public list of identified people. The export uses session and participant codes to reconstruct observations and should remain in the course's authorized environment. Screenshots in this guide come from test sessions rather than student data. Describe classroom comparisons as observations from that activity, with their conditions and denominators, rather than as population estimates.

Checkpoint

Before starting, confirm language, edition, encounter count, group size, and matching rule. Check that the room selector contains only the configurations of its edition and language, that every participant has a separate link, and that the report remains hidden.

1.5 Welcome, instructions, and comprehension

The welcome introduces the laboratory and general participation rules. Participants must confirm that they read them before advancing. The instructions then describe the endowment, activity changes, transfer, agreement cost, and procedure. Matching information appears alongside the rule relevant to the selected configuration. The text does not require prior knowledge of law and economics. A participant should be able to decide by reading what happens when a proposal is accepted and what happens when it is rejected, including the direction of payment and whether

activity occurs.

The comprehension check covers three common accounting facts. The endowment is one hundred. A transfer of ten creates no combined resources: it adds ten to the recipient's account and subtracts ten from the payer's account. Holding other components constant, that transfer reduces the payer's balance by ten. An incorrect response produces a review message and cannot advance. The check does not ask what proposal is optimal or what response the participant should choose. It verifies accounting while leaving strategy for participants, so subsequent behavior is not merely a repetition of advice embedded in the quiz.

The amounts-and-procedure screen appears in every encounter because a new decision requires a new reading of the case. In variable-value configurations, the values are selected once before the proposal. Reloading does not generate another draw. Under private values, a position sees its own value and the announced distribution for the other position; the other realized value appears after the outcome. Under public values, both amounts are available from the start. Verify that distinction before using these configurations to discuss information. A value visible in the final export was not necessarily known at the moment of decision.



BEER Lab

Encounter 1 / 1

Your position: E

Welcome to the BEER Lab

The Behavioral and Experimental Economics Research Lab at the Department of Economics of Tecnológico de Monterrey invites you to learn through decisions in a controlled activity.

Keep silent and do not communicate with other participants. Decide individually and privately. Read the instructions. If you need help, raise your hand and wait. Keep this window open until you receive the closing instructions.

☐ I have read the rules and understand how the activity works.

Continue

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Figure 1.1: Institutional welcome and confirmation of participation rules in English.



BEER LabEncounter 1 / 1

Your position: E

Instructions

Resources and unit of account

Each person receives **100 ECU** at the start of each encounter. Investment, production, damage and transfers are accounted for under the treatment's rules.

ECU stands for Experimental Currency Units. It is the unit of account for this activity.

This session does not convert ECU into real money.

Each person receives 100 ECU per encounter. Activity adds 60 ECU to E and reduces the V positions by a total of 40 ECU. Without activity, neither change occurs. Transfers are added to the recipient and deducted from the payer. Only an accepted agreement incurs the cost of 0 ECU per person. Rejection has no cost.

There is only one encounter.

The proposed amount must be an integer from 0 to 60 ECU. There is one proposal and one response; no counterproposal is available. Acceptance means that E performs the activity and pays the proposed amounts to V. Rejection means no activity and no transfer. The proposing position is E. The other position accepts or rejects.

Continue

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Figure 1.2: Current instructions for the basic edition: initial resources, decision rules, and experimental units.



Review the marked questions. Each shows your answer and an explanation; your other answers are retained.

BEER LabEncounter 1 / 1

Your position: V

Check your understanding

Resources and unit of account

ECU stands for Experimental Currency Units. It is the unit of account for this activity.

This session does not convert ECU into real money.

How many ECU does each person receive at the start of an encounter?

Your answer: 101. The correct answer is 100. Review the endowment and how a transfer moves balances without creating combined resources.

A transfer of 10 ECU creates combined resources of:

A transfer of 10 ECU reduces the payer's balance by:

Continue

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Figure 1.3: Current comprehension check with an incorrect answer, its specific explanation, and retained responses.

Bilateral model and predictions

2.1 Accounts and the disagreement outcome

The basic model has two people, each with an endowment of one hundred ECU. Activity adds sixty to E and subtracts forty from V. Without activity or a transfer, the balances are one hundred and one hundred, totaling two hundred. With activity and no transfer, they would be one hundred sixty and sixty, totaling two hundred twenty. The difference between the benefit of sixty and the reduction of forty is the activity's technical surplus of twenty. That is a monetary resource calculation. It does not determine the appropriate distribution or whether such activity would be legally permissible in a real setting.

V initially has the power to prevent activity. Rejection therefore leaves each person with one hundred and no activity. E proposes an integer amount from zero through sixty to obtain consent. V accepts or rejects. If V accepts an amount t , activity occurs: E receives one hundred sixty minus t and V receives sixty plus t . Their total remains two hundred twenty. The transfer distributes resources across accounts without increasing that total. Rejection means that no proposed amount is paid and no cost is charged merely because E submitted an offer.

The initial entitlement specifies what is available without agreement. It is not a preference for inactivity, and it does not mean that V always rejects. A person can accept compensation, reject a monetarily favorable proposal, or be indifferent between outcomes. The model provides a benchmark based on own monetary payoffs, while observed decisions may reflect additional considerations. Reconstruct the comparison of balances first, then discuss interpretations consistent with the evidence. One response cannot separately identify distrust, distributional concerns, misunderstanding, or a rule about how gains should be shared.

2.2 A mutually beneficial interval

With V consent and no agreement costs, E does no worse than disagreement if t is at most sixty. V does no worse if t is at least forty. The interval of weak monetary improvements is therefore forty through sixty, including the endpoints. A proposal of fifty gives one hundred ten to each person: both gain ten and the total increases by twenty. At forty, V retains one hundred and E receives one hundred twenty. At sixty, E retains one hundred and V receives one hundred twenty. An endpoint leaves one position monetarily indifferent and does not guarantee acceptance.

A proposal of thirty, if accepted, gives E one hundred thirty and V ninety. The total is still two hundred twenty, but V loses ten relative to disagreement. This shows why a resource-maximizing activity and an individual improvement are different concepts. A rejected proposal of fifty leaves one hundred each even though acceptance would have increased resources and protected both balances. That observation motivates a question about bargaining; it does not itself establish

error, inequality aversion, distrust, or a particular sharing norm. Distinguishing those explanations would require additional measurements beyond this decision record.

The reference calculation can also be reconstructed from the two possible outcomes, without symbols. Start from each endowment, add E's benefit only if activity occurs, subtract V's reduction only if activity occurs, then apply a transfer with opposite signs in the two accounts. Finally subtract any agreement cost that actually applies. Adding the two balances cancels the transfer. This method works across proposer changes and is useful when students confuse an offered amount with a payment or assume that changing who proposes changes the benefit and reduction. The institution determines which outcome follows a response.

Theoretical foundation

The bilateral benchmark compares each balance with its disagreement outcome. Activity creates twenty ECU of technical surplus, and accepted transfers distribute it. An interval of monetary improvements exists, but a one-proposal protocol does not guarantee that participants reach an agreement within it.

2.3 E entitlement and payments to stop activity

The first entitlement change modifies what happens without agreement. When E can perform activity by default, rejection leaves E with one hundred sixty and V with sixty. The proposal now purchases suspension: V transfers t to E so that activity does not occur. If accepted, E receives one hundred plus t and V receives one hundred minus t . The accepted total is two hundred, compared with two hundred twenty when activity occurs. Read the payment direction and the rejection consequence carefully. Applying the V-consent formulas to this institution reverses the consequences of the response.

E needs at least sixty to avoid losing from suspension. V can pay at most forty without doing worse than the activity reduction of forty. No amount satisfies both conditions. The formal interval runs from sixty to forty and is empty. An accepted proposal of sixty leaves E with one hundred sixty and V with forty: E retains the disagreement balance while V loses twenty. At forty, E receives one hundred forty and V sixty: V retains the disagreement balance while E loses twenty. Combined resources fall by twenty because a technically beneficial activity is stopped.

Absence of agreement can therefore coincide with the activity that maximizes the sum. A lower agreement rate is not automatically worse performance. The initial entitlement also changes the distribution under disagreement: E has one hundred sixty rather than one hundred, while V has sixty rather than one hundred. That distributional difference remains even if both institutions produce the same activity. Ask students to identify the allocation first and its division second. Do not say that entitlement is irrelevant without specifying whether the claim concerns activity, combined resources, a particular account, or consent.

2.4 Four entitlement and proposer combinations

The basic configuration combines V's entitlement with E proposing. The activity-by-default extension combines E's entitlement with V proposing. Comparing only those two changes entitlement, initiative, and what the transfer purchases. Two additional cells make that limitation visible. In one, V retains the ability to prevent activity and proposes a compensation demand that E accepts or rejects. In the other, E retains activity by default and proposes a payment demand for stopping it that V accepts or rejects. Every cell has one amount and one response, without communication

or a counterproposal.

Changing the proposer may affect the observed division, but does not change the accounts for a given agreement. Under V's entitlement, an accepted amount of fifty gives one hundred ten to each person regardless of who proposed it. Under E's entitlement, an accepted payment of fifty gives E one hundred fifty and V fifty regardless of who proposed it. Students can ask whether demands and offers differ when initiative shifts. Within each entitlement, that comparison maintains a common monetary structure, although the people, session history, and realized experience also matter for interpretation.

The four-cell matrix organizes the analysis without making all institutional changes disappear. Moving from V's entitlement to E's entitlement changes the object of negotiation: permission to act becomes suspension of activity. That is part of the institution and should be described explicitly. A causal comparison would require suitable assignment and sample size. A classroom can provide descriptive comparisons and ask what mechanism each rule opens or closes. Small differences between classroom groups should not be treated as general estimates of bargaining power. The design helps state a hypothesis; it does not establish the hypothesis from a handful of decisions.



BEER Lab
Encounter 1 / 10

Your position: E

Instructions

Each person receives 100 ECU per encounter. Activity adds 60 ECU to E and reduces the V positions by a total of 40 ECU. Without activity, neither change occurs. Transfers are added to the recipient and deducted from the payer. Only an accepted agreement incurs the cost of 0 ECU per person. Rejection has no cost.

Partners are reassigned between encounters while positions remain unchanged. Immediate repetition is avoided when alternatives exist. A single pair cannot be reassigned; later reencounters remain possible.

The proposed amount must be an integer from 0 to 60 ECU. There is one proposal and one response; no counterproposal is available. Acceptance means that E performs the activity and pays the proposed amounts to V. Rejection means no activity and no transfer. The proposing position is V. The other position accepts or rejects.

Continue

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Figure 2.1: V proposes compensation while retaining the ability to prevent activity.

2.5 Low and high agreement costs

Agreement costs are charged only if the proposal is accepted. Each bilateral account pays six or twelve ECU in addition to the transfer. Rejection carries no such charge, and merely submitting a proposal does not create a cost when it fails. Retain that specification during interpretation.



BEER LabEncounter 1 / 10

Your position: V

Instructions

Each person receives 100 ECU per encounter. Activity adds 60 ECU to E and reduces the V positions by a total of 40 ECU. Without activity, neither change occurs. Transfers are added to the recipient and deducted from the payer. Only an accepted agreement incurs the cost of 0 ECU per person. Rejection has no cost.

Partners are reassigned between encounters while positions remain unchanged. Immediate repetition is avoided when alternatives exist. A single pair cannot be reassigned; later reenounters remain possible.

The proposed amount must be an integer from 0 to 60 ECU. There is one proposal and one response; no counterproposal is available. Acceptance means that V pays E to stop activity. Rejection means activity occurs with no transfer. The proposing position is V. The other position accepts or rejects.

Continue

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Figure 2.2: Under activity by default, V proposes a payment for suspension.

This is not a cost of entering every negotiation or a sunk litigation expenditure. It is a resource loss incurred upon agreement. The reduction in combined resources is twice the individual charge because two positions pay it. A cost paid by just one party would be a different model.

With a cost of six, accepted activity gives E one hundred fifty-four minus t and V fifty-four plus t . The total is two hundred eight. E requires t no greater than fifty-four to preserve the disagreement balance of one hundred; V requires t no less than forty-six. The interval is forty-six through fifty-four. An accepted proposal of fifty leaves each person with one hundred four. The technical surplus remains twenty, but twelve units are spent on agreement costs and the available net improvement is eight. The amount transferred cancels when the accounts are added.

With a cost of twelve, the accepted balances are one hundred forty-eight minus t and forty-eight plus t . Their total is one hundred ninety-six. Individual protection would require t at most forty-eight and at least fifty-two, making the interval empty. Acceptance of fifty leaves each person with ninety-eight. Rejection preserves one hundred each, which is the best combined net result available under this configuration. Activity remains technically beneficial before agreement costs, but implementing it through this agreement destroys four units of net resources. A rejection can therefore be the resource-maximizing outcome.

The report shows both technical surplus and loss relative to the best attainable result under the rule and its costs. With the high cost, rejection has zero net loss and agreement has a loss of four. The indicator of rejections with an available monetary agreement gain excludes these encounters because acceptance could not improve the combined result. A dash with an empty denominator is more informative than zero percent. Zero would imply that eligible opportunities existed and none failed; an empty denominator means that the eligibility condition generated no observations. Read that denominator before interpreting the indicator.

Attention

Never add a transfer to combined resources. Do not call every rejection a bargaining failure. With twelve ECU charged to each person upon agreement, acceptance leaves a total of one hundred ninety-six while rejection preserves two hundred. The relevant comparison includes the costs the institution actually requires.

2.6 Variable public and private values

Two configurations replace fixed values with announced distributions. E's benefit is thirty or seventy, and V's reduction is twenty or sixty. Each value has probability one half, and the two draws are independent. Before values are observed, four states have equal probability: thirty and twenty, thirty and sixty, seventy and twenty, and seventy and sixty. Their technical surpluses are ten, negative thirty, fifty, and ten. Activity is strictly beneficial in three of the four states. This is a property of the announced distribution, not a guaranteed activity rate in a finite class.

The public configuration shows both amounts before the proposal. The private configuration gives E only its realized benefit and V only its realized reduction, along with the announced distribution for the other position. E does not see the realized reduction on the proposal screen; V does not see the realized benefit when responding. Both are disclosed after the outcome so that the encounter can be reconstructed. Values are selected once, before the first action. Reloading does not change them, and the application neither draws a value conditional on acceptance nor replaces it because a participant responded slowly.

Both variable treatments have a proposal cap of eighty. This avoids imposing the fixed cap of sixty on the state with a benefit of seventy. It does not make a proposal of eighty individually advantageous. With V consent and no costs, the state-specific interval runs from realized damage



BEER Lab Encounter 2 / 10

Your position: E

Encounter outcome

The proposal was accepted.
Your balance in this encounter: 98 ECU

Activity performed: Yes
Acceptance responses: 1

Selected benefit of E	60 ECU
Total reduction for the V positions	40 ECU
Transfer in your account (+ received, – paid)	-50 ECU
Agreement cost incurred	12 ECU
E balance	98 ECU
Total balance of the V positions	98 ECU
Combined balance	196 ECU

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Figure 2.3: Agreement with a cost of twelve: each balance is 98 ECU.

to realized benefit. In the thirty-and-sixty state it is empty. Accepted activity has a total of one hundred seventy, while rejection preserves two hundred. In seventy-and-twenty the interval is broad, but the result still depends on the actual proposal and response. Announced support is not the same as a recommendation to offer its maximum.

Condition public-private comparisons on the states observed after play. Two small sessions can have different state compositions by chance. A lower aggregate activity rate under privacy might reflect more negative-surplus encounters, more rejected proposals in positive-surplus encounters, or both. The report provides state-specific denominators and outcomes to distinguish these possibilities descriptively. It does not collect beliefs, messages, expectations, or risk preferences. Consequently, an observed difference cannot be assigned exclusively to a mistaken belief, strategic concealment, or risk aversion without additional evidence. Explain what participants knew before using the complete final record to evaluate their choices.



BEER Lab
Encounter 1 / 10

Your position: E

Amounts and procedure

Benefit of activity for E	30 ECU
Total reduction for the V positions	Only the announced distribution is known.

Partners are reassigned between encounters while positions remain unchanged. Immediate repetition is avoided when alternatives exist. A single pair cannot be reassigned; later reenounters remain possible.

The proposed amount must be an integer from 0 to 80 ECU. There is one proposal and one response; no counterproposal is available. Acceptance means that E performs the activity and pays the proposed amounts to V. Rejection means no activity and no transfer. The proposing position is E. The other position accepts or rejects.

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Figure 2.4: E sees its benefit and V's announced distribution.

2.7 Three affected positions and a compensation vector

The collective configurations form groups of four: E, V1, V2, and V3. Each person receives one hundred ECU, making the initial combined total four hundred. Activity benefits E by sixty and reduces the three V accounts by ten, ten, and twenty. Total damage remains forty and the technical gain remains twenty. E proposes one amount for each affected position. All three must be nonnegative integers, and their sum must not exceed sixty. Amounts may differ; the application does not impose equal division. The input limit applies to the vector as well as to each entry.

BEER LabEncounter 1 / 10

Your position: V

Respond to the proposal

Benefit of activity for E	Only the announced distribution is known.
Total reduction for the V positions	60 ECU
Reduction from activity for your V position	60 ECU

Partners are reassigned between encounters while positions remain unchanged. Immediate repetition is avoided when alternatives exist. A single pair cannot be reassigned; later reenounters remain possible.

The proposed amount must be an integer from 0 to 80 ECU. There is one proposal and one response; no counterproposal is available. Acceptance means that E performs the activity and pays the proposed amounts to V. Rejection means no activity and no transfer. The proposing position is E. The other position accepts or rejects.

Amount proposed for your position: 80 ECU

☐ Accept the proposal

☐ Reject the proposal

Continue

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Figure 2.5: V responds with its own reduction while E's realized benefit remains hidden.

Each V position responds without seeing the other responses. Unanimity requires three acceptances; majority requires at least two. If the proposal passes, activity occurs and E pays all three amounts, including the amount proposed for anyone who voted against it. Every V position bears its corresponding reduction. If the proposal fails, there is no activity and no payment. The program does not compensate only affirmative voters or exempt a dissenter from damage. Announce these consequences before decisions because they determine what approval implements and who can be affected. Participants should not discover the payment rule only after voting.

A passing vector of ten, ten, and twenty leaves every V position with one hundred and E with one hundred twenty, totaling four hundred twenty. A vector of ten, ten, and zero supported by V1 and V2 but rejected by V3 passes under majority. E receives one hundred forty, V1 and V2 keep one hundred, and V3 has eighty. Combined resources are still four hundred twenty, although one person loses twenty relative to individual disagreement. The identical votes fail under unanimity, leaving one hundred in each account and a combined four hundred. This distinguishes aggregate resources from protection of every individual.

The report's V balance is the sum of three accounts, not the balance of a representative neighbor. Individual acceptance uses three responses per resolved collective proposal; agreement uses one observation per group. Those denominators are different. A majority proposal with two affirmative responses contributes one accepted agreement and two acceptances out of three. The acceptance-count distribution identifies proposals with zero, one, two, or three affirmative votes. For a detailed distributional discussion, use each position's result or the export: the V sum can conceal that one person's compensation was below its own activity reduction.

The groups remain fixed for ten encounters in both collective configurations. This preserves recognizable positions with their announced reduction amounts. It also means that subsequent proposals may depend on earlier experience within the same group. A change from unanimity to majority should be compared using the same benefit, reductions, cap, and payment rule. It changes the approval threshold, not the physical reduction or the obligation to pay the announced vector. If a class compares separately enrolled groups, differences in people and experience remain part of the descriptive result. They do not disappear because the two rules have matching parameters.

What participants will see

E sees three proposal fields and the announced reductions for V1, V2, and V3. Each V position sees its proposed amount and responds without observing the other votes. A passing proposal produces activity and all announced payments, including payment to a dissenter.

2.8 Compensation fixed at forty, twenty, or eighty

Three configurations replace bargaining with E's activity choice subject to a fixed payment. E chooses whether to act. V has no acceptance form and cannot prevent that choice within the game. Activity requires the announced transfer to V; inactivity means no transfer. There is no agreement cost. Although this payment appears in the account ledger as a transfer, it is not an accepted proposal. The report therefore records activity and balances while displaying negotiated-agreement statistics with an empty denominator. V's absence of a response must not be converted into a negative or affirmative bargaining response.

With compensation forty, activity gives E one hundred twenty and V one hundred; inactivity gives each one hundred. With compensation twenty, activity gives E one hundred forty and V eighty: E gains forty relative to inactivity and V loses twenty. With compensation eighty, activity would give E eighty and V one hundred forty: E loses twenty relative to inactivity. An exclusively own-money benchmark predicts activity in the first two cases and inactivity in the third. All three retain a



BEER LabEncounter 1 / 10

Your position: V3

Instructions

Each person receives 100 ECU per encounter. Activity adds 60 ECU to E and reduces the V positions by a total of 40 ECU. Without activity, neither change occurs. Transfers are added to the recipient and deducted from the payer. Only an accepted agreement incurs the cost of 0 ECU per person. Rejection has no cost.

The same positions remain together across encounters.

Activity reductions are 10, 10, and 20 ECU for V1, V2, and V3, respectively. E proposes three amounts, one for each V position. Their sum cannot exceed 60 ECU. The three positions respond without seeing each other's responses. At least two acceptance responses are required. If the agreement passes, activity affects everyone and E pays every proposed amount, including amounts for a position that voted against it. If it fails, no activity or payment occurs.

Continue

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Figure 2.6: Majority instructions explicitly describe payments and reductions for all affected positions.

BEER LabEncounter 1 / 10

Your position: E

Propose an amount

Benefit of activity for E	60 ECU
Total reduction for the V positions	40 ECU

The same positions remain together across encounters.

Activity reductions are 10, 10, and 20 ECU for V1, V2, and V3, respectively. E proposes three amounts, one for each V position. Their sum cannot exceed 60 ECU. The three positions respond without seeing each other's responses. Three acceptance responses are required. If the agreement passes, activity affects everyone and E pays every proposed amount, including amounts for a position that voted against it. If it fails, no activity or payment occurs.

Amount for V1 (ECU)

Amount for V2 (ECU)

Amount for V3 (ECU)

Continue

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Figure 2.7: A collective proposal has three amounts and a cap on their combined value.

benefit of sixty, damage of forty, and technical surplus of twenty. What changes is the private account of the decision maker.

The application allows both actions in every fixed-compensation configuration. It does not force E to follow the monetary benchmark. If E acts with compensation eighty, the total remains two hundred twenty and V gets one hundred forty. If E declines activity with compensation twenty, both receive one hundred. Read these as observed decisions rather than presumed calculation failures. The initial quiz checks account movements but does not ask which action maximizes E's payoff. During feedback, compare the decision with its monetary consequence and discuss alternative considerations that could be consistent with it without claiming to identify a motive.

Low compensation can preserve the resource-maximizing activity while leaving V worse off. High compensation can discourage that activity under E's monetary benchmark, losing twenty units of combined resources. Compensation equal to damage aligns E's choice with net activity benefits in this particular model and keeps V at one hundred. The conclusion depends on the announced values, the binary action, and the absence of other costs. It is not a universal damages recommendation or an estimate of legally compensable harm. The example shows how an institutional payment changes incentives while transfers themselves cancel from the combined account.



BEER Lab
Encounter 1 / 10

Your position: E

Choose whether to perform activity

Benefit of activity for E	60 ECU
Total reduction for the V positions	40 ECU

Partners are reassigned between encounters while positions remain unchanged. Immediate repetition is avoided when alternatives exist. A single pair cannot be reassigned; later reencontres remain possible.

E chooses whether to perform activity. Performing it requires a payment of 40 ECU to V. V does not accept or reject that choice. Without activity there is no payment. There is no agreement cost.

☐ Perform activity and pay the stated amount

☐ Do not perform activity

Continue

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Figure 2.8: E chooses activity under fixed compensation; V does not accept a proposal.

Session, report, and feedback

3.1 From decisions to the outcome screen

After the comprehension check, participants reach the amounts screen. In bilateral negotiation, the proposer enters an amount while the other position waits. The application checks for a nonnegative integer within the announced cap. An invalid amount cannot advance. Collective negotiation adds a cap on the sum of three amounts. Each entry may be individually below sixty while the sum is invalid. The validation message requests a corrected vector; it does not replace it with an amount chosen by the software. Participants retain control of the substantive proposal after correcting its permitted format.

Once the proposal is recorded, each responder sees the amount relevant to its position and the rule that will apply. E and V cannot send messages through the interface, and a second proposal is unavailable. Responders accept or reject. Collective responses remain pending until all required people have answered and are not disclosed in advance. The instructor should wait for completion without publicly asking someone to accept in order to speed up class. A waiting screen represents technical coordination, not evidence that a participant is strategically resisting an agreement. Administration can identify a pending stage without interpreting motives.

Under fixed compensation, E reaches the activity-choice screen and V waits. There is no offer to enter and no acceptance to submit. The application records activity, payment, and balances after E's choice. In every configuration, the outcome screen shows the status, own balance, activity, and relevant accounts. The own transfer is positive when received and negative when paid. Realized benefit and total reduction are available for reconstruction. Private realized values are disclosed after rejection as well as acceptance. This disclosure enables an ex post calculation without changing the information under which decisions were made.

Resolution occurs once after the required actual decisions. Reloading cannot duplicate a transfer or charge an agreement cost twice. An outcome must be recorded before the accounts are displayed. After reading it, participants move to another encounter or to an explicit closing page. Closure shows the accumulated balance and asks them to keep the window open for instructor directions. It has no continuation button into technical rounds and no generic message that pages have run out. This helps distinguish a normal completion from an interrupted connection and provides a clear endpoint for the teaching activity.

3.2 What counts as an observation

The report's principal observation is a completed group encounter. A pair completing an encounter contributes one observation rather than two, and a four-person group also contributes one rather than four. Individual balances are components of it. Two groups completing ten encounters



BEER Lab

Encounter 1 / 1

Your position: E

Encounter outcome

The proposal was accepted.

Your balance in this encounter: 100 ECU

Activity performed: Yes

Acceptance responses: 1

Selected benefit of E	60 ECU
Total reduction for the V positions	40 ECU
Transfer in your account (+ received, – paid)	-60 ECU
Agreement cost incurred	0 ECU
E balance	100 ECU
Total balance of the V positions	120 ECU
Combined balance	220 ECU

Continue

Powered by [oTree](#)

Figure 3.1: Outcome with own balance, activity, and encounter accounts.

produce twenty completed encounters, not twenty independent groups. Repeated relationships and recurring participants matter for subsequent inference. In class, say that twenty encounters were observed and state the number of groups and people that produced them. This description is precise without suggesting a larger independent sample than the activity actually contains.

The report traverses every active encounter even when opened from the final technical round. A one-encounter configuration has ten rounds available in the program structure, but only its first round is active; the additional nine do not contribute proposals or outcomes. With four participants, the expected denominator is two in the single-encounter configuration and twenty in a ten-encounter configuration. Opening the report before play shows zero completed while retaining the expected number. Expected encounters are not observations, and a progress label must never be interpreted as the number of completed outcomes simply because the session was created.

Pending encounters are excluded. A proposal may be recorded while a response remains outstanding; its amount does not yet enter the report's distribution of resolved proposals. When the first group completes, one observation enters the relevant aggregates. The remainder stays pending. This avoids mixing open offers with offers that already have consequences. The instructor can inspect progress without revealing statistics. To diagnose delay, use administrative progress screens rather than infer from a partial average that the unfinished group is choosing a particular response. A partial report describes only the groups that have resolved their decisions.

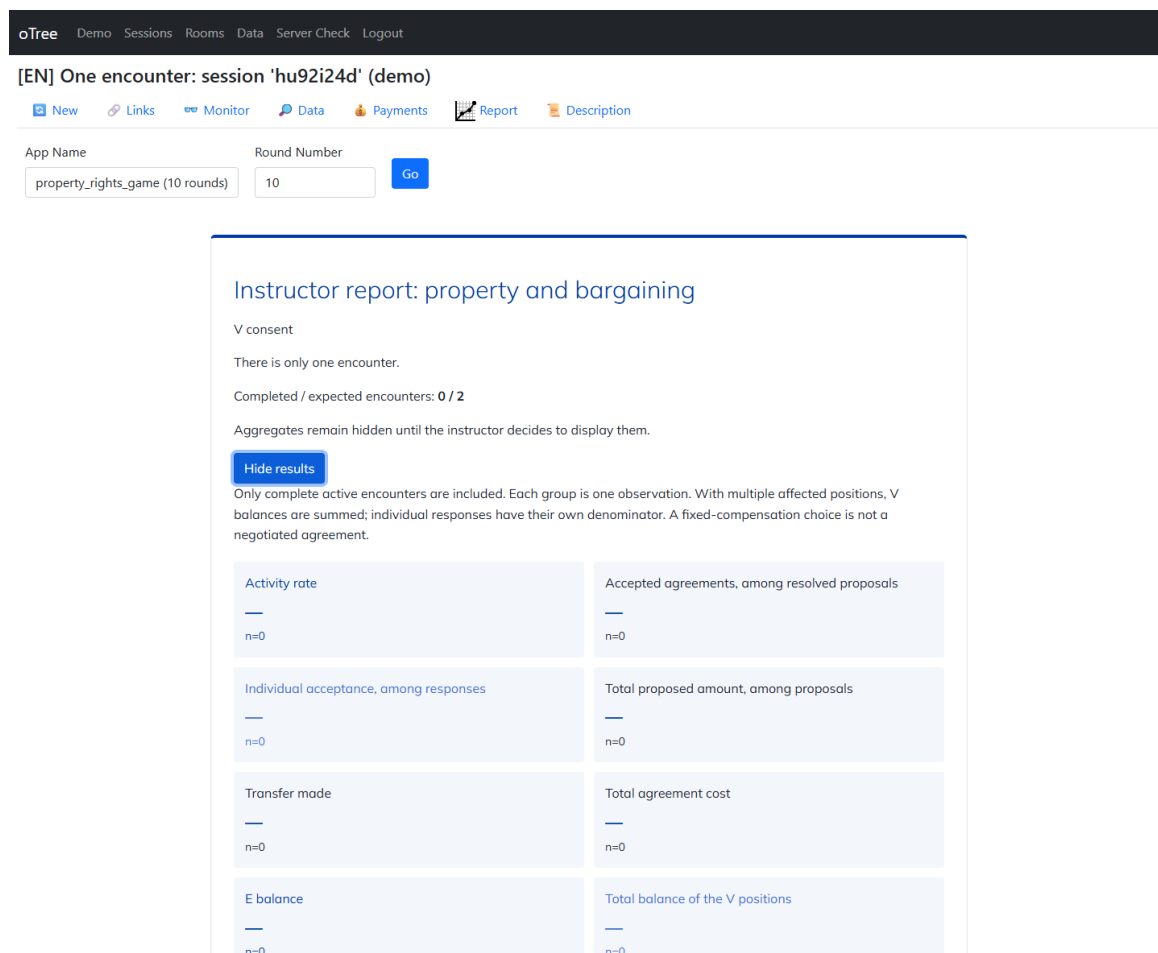


Figure 3.2: Empty report: completed and expected encounters. Part 1.



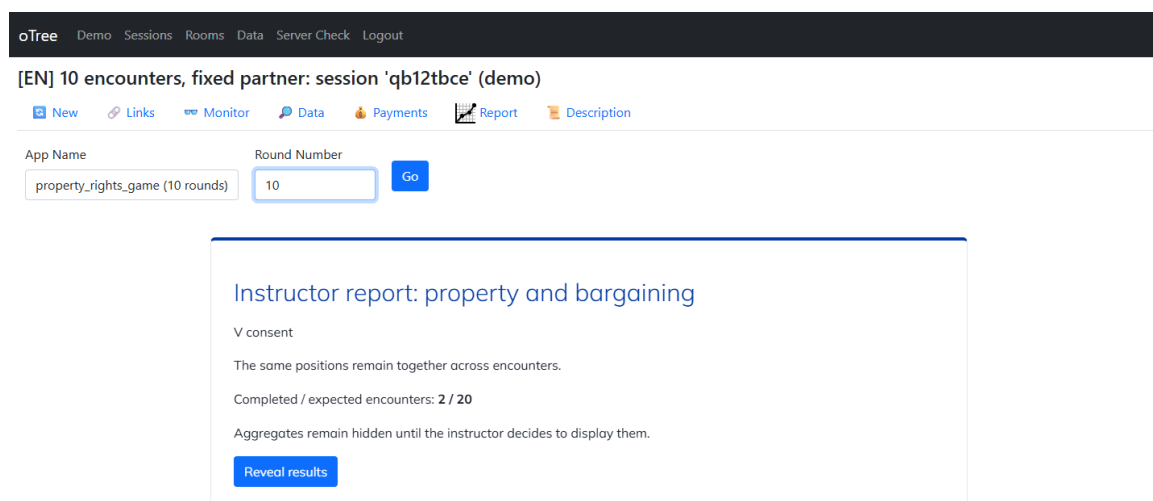


Figure 3.4: The report can remain hidden while completed encounters accumulate.

3.3 Activity, agreement, and individual responses

Activity rate uses all completed encounters. Accepted-agreement rate uses only negotiated and resolved proposals. Under fixed compensation, that second denominator is zero and the result is a dash. Individual acceptance uses actual responses: one per bilateral proposal and three per collective proposal. A majority proposal with two affirmative votes contributes one accepted agreement, one activity, and two acceptances out of three. Keeping those rates separate prevents the claim that every realized activity was accepted by all affected people. The institutional rule explains how responses lead to implementation; the response count shows whether consent was unanimous.

Mean proposed amount includes resolved proposals whether accepted or rejected. Mean transfer uses payments that occurred: a rejected proposal contributes zero even if its proposed amount was large. Under fixed compensation, the realized transfer equals the announced amount when activity occurs and zero otherwise. Mean agreement cost sums the actual debits from all positions. Do not call a mean offer the mean payment or describe a mean transfer as a demand. Each statistic answers a different question, and their differences are informative. A large proposed amount may coexist with a small realized transfer if many proposals failed.

Distributions supplement means. The report shows accepted and rejected outcomes or activity and inactivity, intervals of proposed amounts, and the number of affirmative responses. Amount intervals are descriptive bins of the allowed range, not strategic thresholds. A mean near fifty may reflect many similar proposals or a mix of extreme proposals with different frequencies. Inspect the distribution before assuming a representative offer. Counts and percentages use the same completed proposals and omit positions still waiting. A histogram with no observations is not evidence that participants preferred an amount of zero; it reflects the absence of applicable resolved proposals.

The evolution table has a row for each active encounter, reporting completed groups and mean E, V, and combined balances. Under collective configurations, V denotes the sum of three balances. A decline in that sum does not mean that all three people lost equally. A trajectory can suggest adaptation, continuity, improved comprehension, or changing state composition, but does not distinguish those explanations automatically. Reassigned-pair configurations retain stable positions and avoid immediate repeats when alternatives exist; later meetings remain possible. One pair alone cannot be reassigned. State those limits before interpreting a repeated trajectory as anonymous one-shot behavior.

3.4 Resource benchmarks and the loss measure

Realized surplus subtracts initial endowments from the combined balance: two hundred in a pair and four hundred in a collective group. It can be positive, zero, or negative. Maximum technical surplus compares activity with inactivity before agreement costs using realized values. The best attainable net result incorporates the alternatives and costs permitted by the institution. Reported loss is that benchmark minus realized surplus. It is not an estimate of legal harm or subjective welfare. It is a monetary difference among the alternatives made available in this particular teaching model.

In the basic case, the best net surplus is twenty. Any accepted permitted proposal gives surplus twenty and loss zero, while rejection gives surplus zero and loss twenty. This does not imply that every accepted division protects each participant. With a cost of six, the best net surplus is eight; with twelve, it is zero. Under E's entitlement and fixed values, disagreement activity yields twenty while accepted suspension yields zero. Under fixed compensation, the combined benchmark remains twenty regardless of the transfer amount. Transfers redistribute balances, whereas agreement costs reduce their sum. This distinction should precede any interpretation of the loss statistic.

The rejection-with-available-gain indicator identifies rejected proposals in encounters where moving from disagreement to agreement would increase the net combined result. In the prepared bilateral design, that condition relates to the availability of a transfer protecting both balances. Under majority approval, an aggregate gain does not guarantee that every affected person is protected. The indicator does not judge whether the actual proposed amount was individually acceptable or assign responsibility for rejection. An offer diagnosis requires comparing the proposed vector with individual accounts, caps, realized values, and the relevant disagreement outcome. A positive aggregate opportunity alone is insufficient for that diagnosis.

State-specific results support the variable-value comparison. Each observed benefit-and-total-reduction row shows its count, activity, agreement, and mean total. A state that did not occur is not supplied with invented observations. A state with one encounter has a much less stable percentage than a state with many. Ask students to read the denominator before the percentage. One hundred percent based on one observation is a description of that observation, not a general conclusion about public information. Differences in realized state composition should be examined before comparing overall activity or agreement rates across small sessions.

3.5 Export and reconstruction

The custom export contains one row per participant in each completed active encounter. It repeats group fields so that an individual row retains context. Before calculating group means outside the report, deduplicate by session, encounter, and group. Summing a combined balance repeated on four participant rows would multiply collective resources by four. Individual acceptance, by contrast, uses the rows for positions that actually responded. A proposer row or a nonnegotiation decision is not a negative response. It represents the absence of an applicable response. Choosing the correct observational unit is part of learning to read experimental data.

Exported fields preserve language, edition, treatment, matching, parameters, position, individual balance, actual decisions, proposals, payments, and status. Realized E values and damages appear even when private during play. Their availability after the session does not imply that participants knew them beforehand. Retain that distinction when preparing assignments. To analyze private-information decisions, reconstruct available information from the treatment rules and own values rather than assume that the complete final dataset was visible at choice time. The dataset records outcomes; the design specifies the information structure under which those outcomes were generated.

Activity rate 80.0% n=20	Accepted agreements, among resolved proposals 80.0% n=20
Individual acceptance, among responses 80.0% n=20	Total proposed amount, among proposals 43.00 n=20
Transfer made 33.00 n=20	Total agreement cost 0.00 n=20
E balance 115.00 n=20	Total balance of the V positions 101.00 n=20
Combined balance 216.00 n=20	Surplus above endowments 16.00 n=20
Loss relative to the best attainable result under this rule and its costs 4.00 n=20	Maximum technical surplus, before agreement costs 20.00 n=20
Rejections when a monetary gain from agreement is available 20.0% n=20	

Figure 3.5: Completed metrics keep denominators separate for activity, agreements, and individual responses.

Distribution of proposed amounts

n=20

ECU / n	Observations	%
0–12	4	 20%
13–25	0	0%
26–38	0	0%
39–51	10	 50%
52–60	6	 30%

Figure 3.6: Proposed-amount distribution in a completed demonstration.

Evolution across encounters

Encounter	n	Activity rate	E	V	Combined balance
1	2	100.0%	100.00	120.00	220.00
2	2	100.0%	110.00	110.00	220.00
3	2	0.0%	100.00	100.00	200.00
4	2	100.0%	160.00	60.00	220.00
5	2	100.0%	100.00	120.00	220.00
6	2	100.0%	110.00	110.00	220.00
7	2	0.0%	100.00	100.00	200.00
8	2	100.0%	160.00	60.00	220.00
9	2	100.0%	100.00	120.00	220.00
10	2	100.0%	110.00	110.00	220.00

Figure 3.7: Ten-encounter evolution with E, V, and combined balances.

Before comparing variants, write a table of what stays fixed and what changes. Low cost versus basic preserves values, entitlement, and proposer while changing the agreement debit. Private versus public preserves supports, probabilities, cap, and protocol while changing prior visibility. Majority versus unanimity preserves group size, individual damages, cap, and payments while changing the approval threshold. Low versus high fixed compensation preserves unilateral choice while changing its required payment. This exercise disciplines interpretation. It also makes clear when two configurations differ in several institutional features, such as initial entitlement and what the transfer purchases.

Compare fixed and reassigned pairs using the two ten-encounter basic reports with the same language, participant count, values, entitlement, and protocol. Read trajectories, agreement rates, and distributions alongside each session's denominators. Reports identify their matching rule without pooling sessions. Comprehension, experience, and partner composition can affect patterns; avoid attributing differences immediately to reputation. Repeated participants generate dependent observations. Retain session and participant identifiers for later inference.

3.6 Feedback beginning with accounts

Begin feedback after decisions close. Four steps help organize it: reconstruct a concrete outcome, identify that configuration's disagreement result, compare activity and combined resources with individual distribution, then ask what changed under another institution. This order avoids starting with labels students can repeat without calculation. A claim that bargaining worked might mean an agreement occurred, total resources increased, or no individual lost relative to disagreement. Those claims are different. The activity is useful precisely because some configurations and choices separate them. Ask students to state which claim they intend before evaluating evidence for it.

Ask two students to explain the same proposal from E's and V's perspective. If their calculations differ, return to payment direction and activity changes. If both calculations are correct but evaluations differ, identify their criteria: own balance, total, equality, consent protection, or something else. The guide does not assume those criteria are interchangeable. A collective example is particularly helpful because greater combined resources can coexist with a loss for one person. Keep discussion about positions and institutions rather than require participants to defend their actual private decisions publicly. Hypothetical examples can support the same conceptual learning.

Feedback script

First ask what each position would receive without agreement. Then calculate the observed outcome. Only afterward ask whether combined resources increased, each person improved, and everyone consented. When those answers differ, use the difference to explain what each concept measures.

3.7 Exercises and reference solutions

Exercise one uses a basic proposal of fifty accepted by V. The balances are one hundred ten each, the total is two hundred twenty, and surplus is twenty. Rejection instead leaves one hundred each, a total of two hundred, and loss twenty relative to the net benchmark. A solution should display both accounts and explain that transferring fifty does not add fifty to the total. A correct total without individual calculations can conceal a payment-direction mistake. Request the separate account reconstruction before awarding full credit for the conclusion about resources or improvement.

Exercise two retains the offer of fifty and charges six per person upon agreement. Acceptance

gives one hundred four each, total two hundred eight, combined costs twelve, and surplus eight. Charging twelve per person instead gives ninety-eight each and a total of one hundred ninety-six; rejection preserves two hundred. Students should identify zero as the high-cost net benchmark even though technical surplus remains twenty. This assesses the rule defining when costs apply as well as arithmetic. A response that subtracts the fee after rejection has implemented a different institution and should be corrected explicitly.

Exercise three uses majority and a vector of ten, ten, and zero. V1 and V2 accept while V3 rejects. Activity occurs: E receives one hundred forty, V1 and V2 receive one hundred each, and V3 receives eighty. Total resources are four hundred twenty. The same votes under unanimity prevent activity and leave one hundred each. Explain how majority changes the power of individual refusal and why a combined gain does not transform V3's negative vote into consent. A complete solution names the threshold and states that all announced transfers are paid when the proposal passes.

Exercise four discloses a benefit of thirty and reduction of sixty after private-value play. Activity would yield surplus negative thirty and a total of one hundred seventy without costs, regardless of the accepted transfer. Inactivity preserves two hundred. Rejection in this state is not a monetary efficiency loss. Before play, neither position knew both realized values. The explanation must separate ex post evaluation from the decision made under partial information. Do not attribute complete knowledge to a responder simply because both values appear on the result screen or in the final export.

Exercise five compares fixed payments of twenty and eighty. With activity, the first yields one hundred forty for E and eighty for V; the second yields eighty for E and one hundred forty for V. Both totals are two hundred twenty. Without activity, both institutions yield one hundred each. E's monetary benchmark predicts activity with twenty and inactivity with eighty. The solution should distinguish that private incentive from the combined maximum and note that V responds in neither institution. An absent response is a feature of the procedure, not implicit acceptance recorded by the program.

3.8 Assessment criteria and follow-up activities

A short assessment can assign credit to four abilities: reconstructing accounts, identifying disagreement, separating combined resources from distribution, and recognizing available information. Use a new example with the same procedure for each ability. Changing fifty to forty-five checks transfers without rewarding memorization. Changing the proposer checks that formulas depend on entitlement rather than initiative. Two affirmative votes check majority approval. A state disclosed after play checks information timing. Supply the full rules in the question so that assessment measures comprehension rather than guessing an unstated institution.

Evaluate the quality of calculation and reasoning rather than the strategy selected during play. Do not award higher marks for accepting an offer or maximizing the participant's own balance in the session. The activity explores decisions, but assessment should treat students consistently. A response may identify an aggregate gain and criticize a rule that imposes a loss on a dissenter. If it separates the accounts and evaluative criteria, it demonstrates understanding even when its normative judgment differs from the instructor's. The monetary benchmark is a reference for explanation, not a required moral position.

For a written follow-up, ask students to compare two rules in a table. Include a disagreement outcome, one possible decision, individual balances, and a combined total. Explain who has initiative, who can block activity, and whether payment depends on consent. To move toward research, students can propose assignment procedures and state a hypothesis before observing results. That exercise also requires addressing dependence within repeated groups and separating

an analysis plan from the teaching activity. An application producing data does not by itself turn a classroom into a study with causal inference or a representative sample.

Access, catalog, and sources

4.1 Access through the updated laboratory website

Start at <https://beer-lab.org/en/>. Select **CLASSROOM** in the top navigation menu; it opens <https://teaching.beer-lab.org/en/>. In the **Classroom experiments** catalog, use the search box to locate the activity by name. You can also filter by **Topic** or **JEL code**. Clear any filters left from an earlier search before looking for another game.

Each family's card distinguishes **Español** and **English** access links. The **Show extended version** checkbox selects that edition before following a link. Catalog language and session language are separate choices: verify both. Students use the room specified by the instructor; the instructor prepares and monitors the session through this family's own administrative pages.

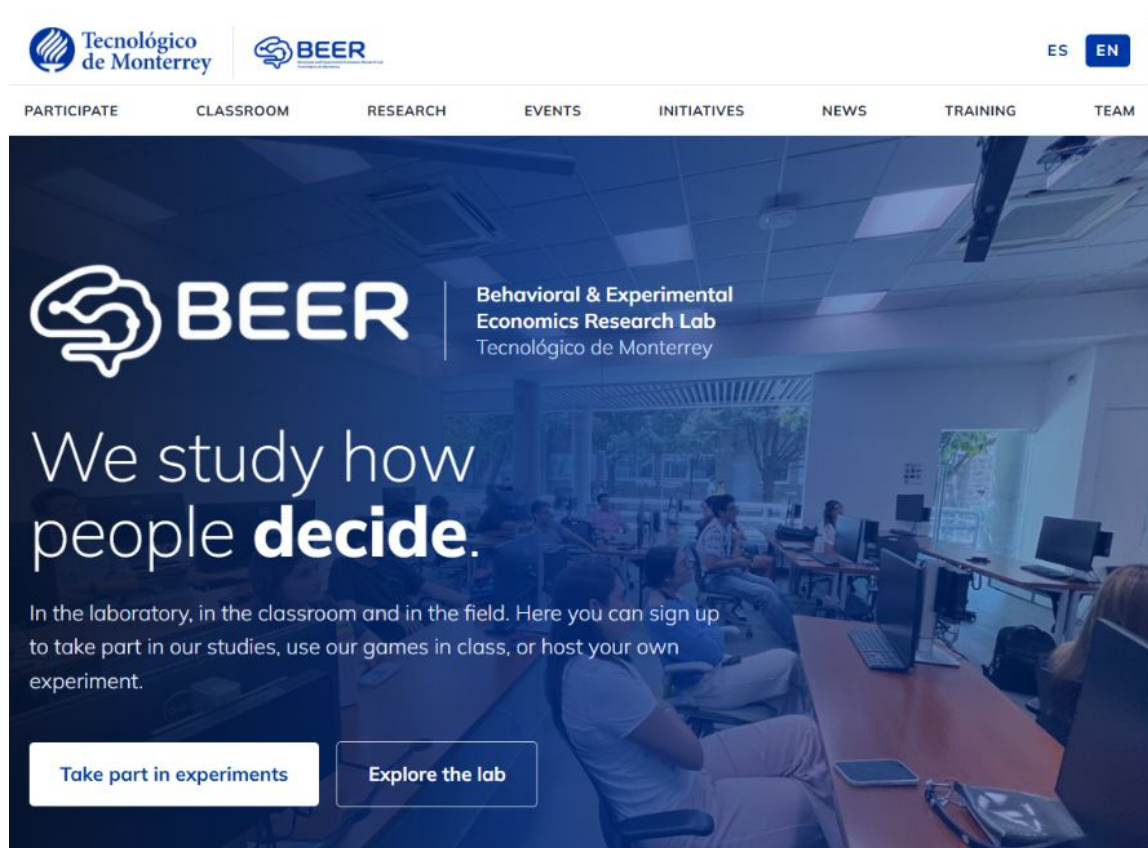


Figure 4.1: Current institutional website. Select CLASSROOM in the top navigation menu to open the teaching experiments. Captured on October 7, 2026.



Figure 4.2: Current catalog: search by title, topic, or JEL code. Then locate this family's card and select language and edition. Captured on October 7, 2026.

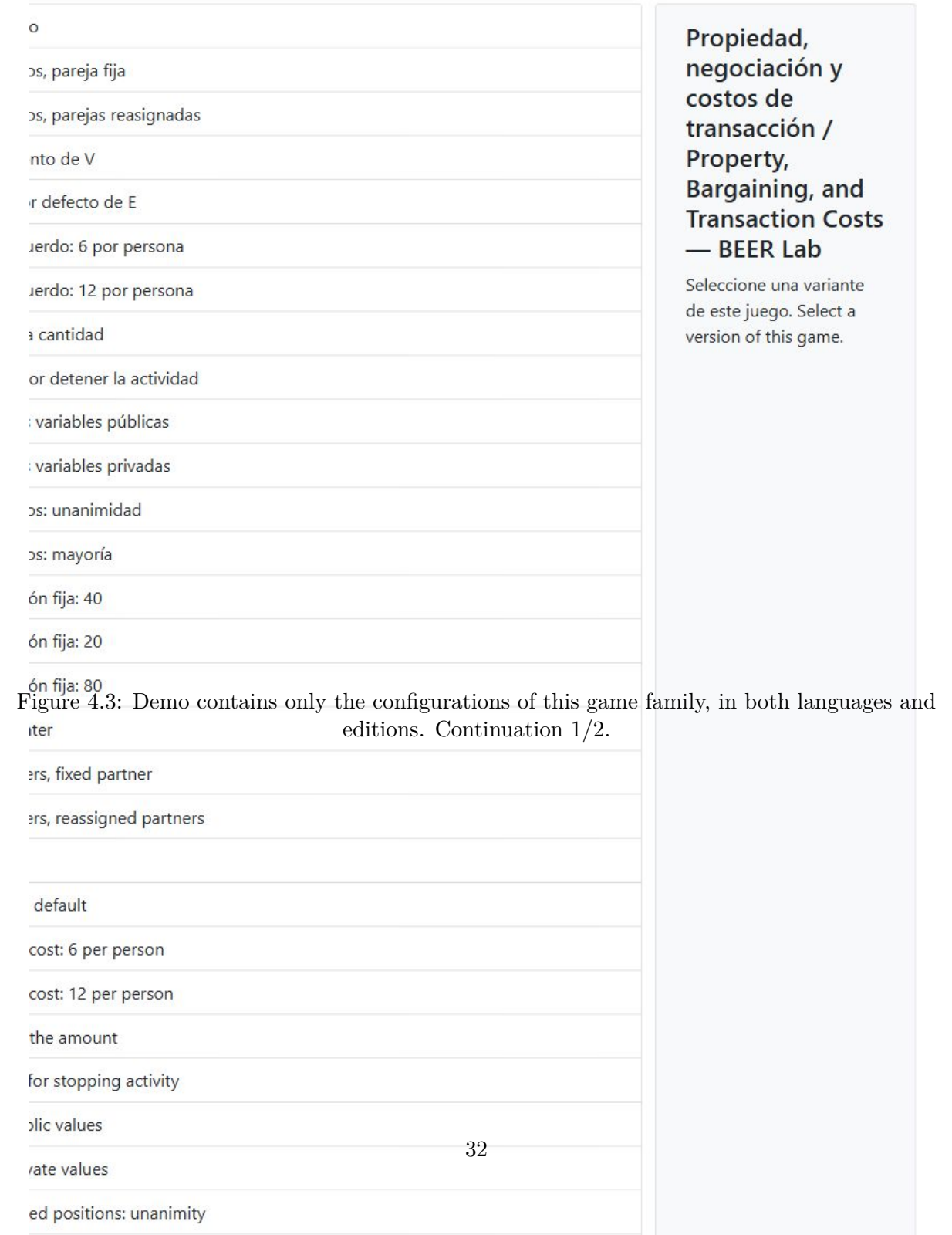
Checking resources, comprehension, and participant requirements

Before opening the room, check the selected configuration and the number of students present. The session-creation form states the group size and minimum required by that configuration. An individual activity accepts any positive participant count; an interactive activity must satisfy its stated requirement: complete groups when size is fixed, or a minimum participant count when size is flexible. Requirements may change across treatments, for example when adding a third party or changing an institution's size. If you edit a grouping parameter, check the requirement for the edited configuration, rather than relying only on the demo's suggested count.

In the instructions, ensure that students can identify what each role receives, what they can decide, and how the outcome is calculated. An initial account, a distributable budget, and final earnings need not be the same amount. Refer to the resources panel and the example for the selected treatment. Do not carry the basic edition's endowment into a treatment that changes accounts or introduces additional positions.

ECU stands for *Experimental Currency Units*: the activity's unit of account. An outcome of 100 ECU does not automatically equal 100 pesos or 100 dollars. Conversion depends on the session configuration. Before announcing a payment, confirm with the laboratory whether money is paid, the conversion rate, and which decisions count for payment. In hypothetical modules, describe amounts as outcomes in the stated situation.

When a comprehension check is included, an incorrect response receives an explanation beside that question, identifying the submitted answer and the correct answer. Other answers remain in the form. Ask the student to return to the example, locate the relevant rule, and redo the calculation before correcting the response. Avoid revealing answers to the entire class for an individual error, and do not interpret a comprehension mistake as an economic choice in the game.



variables privadas
pos: unanimidad
pos: mayoría
posición fija: 40
posición fija: 20
posición fija: 80
iter
ers, fixed partner
ers, reassigned partners
default
cost: 6 per person
cost: 12 per person
the amount
for stopping activity
olic values
rate values
ed positions: unanimity
ed positions: majority
ensation: 40
ensation: 20
ensation: 80

Figure 4.4: Demo contains only the configurations of this game family, in both languages and editions. Continuation 2/2.

Rooms

Current rooms:

[ES] Propiedad y negociación: básica
[EN] Property and bargaining: basic
[ES] Propiedad y negociación: extendida
[EN] Property and bargaining: extended

Figure 4.5: Rooms contains the four rooms for this family: basic and extended editions in Spanish and English.

Room: [EN] Property and bargaining: basic

Create a new session

Session Config

[EN] One encounter

Number of participants

Complete groups of 2 participants. Use a multiple of 2; minimum 2.

Create

[Configure session](#) 

App sequence

property_rights_game (10 rounds)

Property entitlements, bargaining and transaction costs.

Figure 4.6: Session-creation form for the basic English room. Check the selected configuration and participant requirement before creating the session.

Downloading a session with several rounds

For the instructor

Open **Data** within the relevant session and use that session's CSV or CSV-for-Excel download link. The general export has one row per participant and columns for the different rounds. Ten rounds do not necessarily mean ten rows per person. When the family provides its own long-format export, observations may instead be organized by participant and round or another unit defined by the design.

Save the original file together with the configuration name, session code, and active-round count. Check that columns for the last active round are present and that the data belong to the selected session. Empty cells can represent inactive rounds, a pending decision, or a field that does not apply to a role; do not automatically recode them as zeros. To compare learning, preserve round and group identifiers alongside participant identifiers. Share only anonymous aggregates in class, and record session incidents before constructing derived tables.

4.2 Local instance and four filtered rooms

The verified local family uses port 8079 and presents thirty-two configurations: six basic and twenty-six extended. A local address works on the computer hosting the server; it is not automatically reachable on students' devices. A class on other computers requires deployment accessible and tested on the relevant network. The proposed public domain belongs to this family but remains pending publication. Screenshots of the local instance do not certify that the proposed public address is operational. Keep the distinction between a completed package and its deployment explicit when distributing access instructions.

The local demonstration is <http://localhost:8079/demo>; administrative room listing is <http://localhost:8079/rooms>. The proposed public domain is <https://propertyrights.beer-lab.org/>. Four rooms separate edition and language. Basic rooms contain only the three routes in their language, while extended rooms contain only the thirteen variants in their language. Filtering reduces the risk of selecting an incompatible edition when entering through a room. Room names are canonical identifiers: underscores are part of their addresses and must not be replaced with hyphens, spaces, or informal translations. The instructor opens the administrative room, selects an appropriate configuration, and distributes access for that new session. Do not reuse demonstration participant links from screenshots as classroom enrollment links.

Spanish basic: http://localhost:8079/room/propiedad_es; English basic: http://localhost:8079/room/property_en; Spanish extended: http://localhost:8079/room/propiedad_extendido; English extended: http://localhost:8079/room/property_extended.

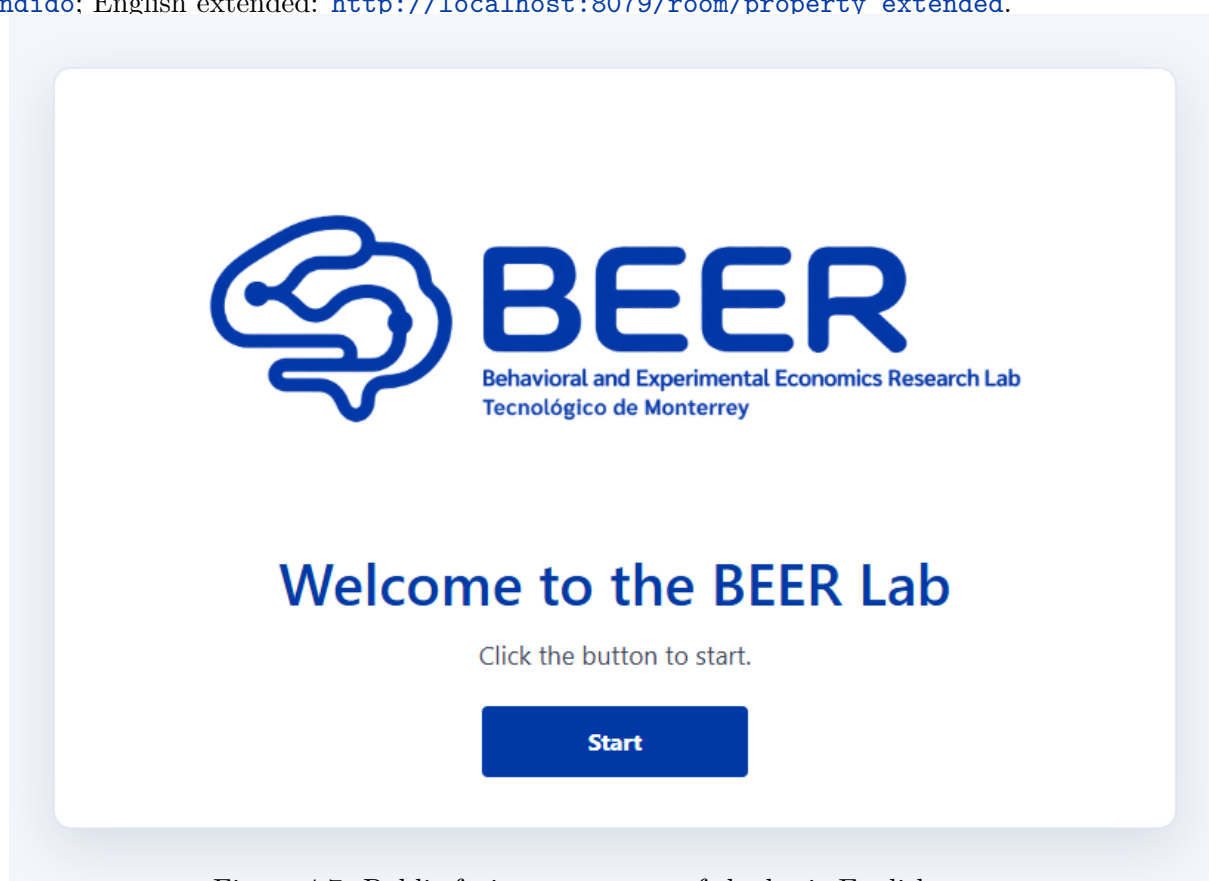


Figure 4.7: Public-facing entry page of the basic English room.

4.3 Navigation from the portals

The institutional portal's Class section points toward teaching resources. You can also enter the teaching.beer-lab.org directory directly. Select a language and search by name, topic, or JEL code. After publication, the property-and-bargaining card should open its own family, with Demo for demonstrations and Rooms for the four rooms. During this local delivery, the operative address uses port 8079; the card and public routes are prepared for later incorporation. A screenshot of the general directory is not confirmation that this game already appears there. The family domain must be tested after deployment before distributing it to a class.

The instructor administers a room through Rooms and selects a configuration before distributing links. Students enter through its public room page or an individual session link. Administrative credentials belong to the course deployment and should not be projected or distributed with



BEER Lab

Encounter 1 / 1

Your position: E

Activity completed

Your accumulated balance: 100 ECU

You have completed all encounters. Keep this window open and wait for the instructor's instructions.

Powered by [oTree](#)

Figure 4.9: Closure and accumulated balance on a narrow screen. Continuation 2/2.

participant access. Stable room addresses provide an entry point across sessions, while participant codes belong to a particular session. Verify edition and language in the selector before creating the session, even when an address looks familiar. A saved test link is not a substitute for enrollment in a newly prepared classroom session.

Proposed public routes: https://propertyrights.beer-lab.org/room/propiedad_es, https://propertyrights.beer-lab.org/room/property_en, https://propertyrights.beer-lab.org/room/propiedad_extendido, and https://propertyrights.beer-lab.org/room/property_extended.

4.4 Topics and JEL classification

The catalog card uses six English topics: property rights, bargaining, transaction costs, consent, private information, and collective decision making. Spanish equivalents are derechos de propiedad, negociación, costos de transacción, consentimiento, información privada, and decisión colectiva. The card should help an instructor locate the mechanism and prepare a comparison. It should not describe the game as legal advice or promise an exact replication of published studies. Duration remains provisional until a classroom pilot documents actual reading, decision, waiting, and discussion time. A useful catalog distinguishes the game's question from the breadth of the surrounding literature.

JEL codes were checked against the American Economic Association's official classification. K11 is Property Law; D23 includes Organizational Behavior, Transaction Costs, and Property Rights; C78 is Bargaining Theory and Matching Theory; C92 is Laboratory, Group Behavior. These four codes identify the main content and the activity's experimental form. Adding a code for every possible discussion topic would weaken rather than clarify the card. Codes complement accessible topic labels and a short description; they do not replace a statement of what participants decide or what an instructor can compare.

4.5 Relationship to existing games

Other fields were reviewed only to avoid duplication. The existing externalities-and-regulation family compares instruments such as taxes, standards, and permits; it does not implement this initial-entitlement negotiation with a proposed transfer. The endowment-effect family studies individual valuations with a different decision procedure. Prepared Law families on liability, litigation, and contracts concentrate on prevention, dispute resolution, or investment and remedies. This game contributes an external activity, the power to prevent it, bargaining over consent, and collective approval. Those mechanisms justify a distinct Law family rather than another version of an existing regulatory game.

Connections across topics remain useful for teaching. An instructor may note that a tax and fixed compensation both affect private incentives, or that valuation can depend on the entitlement held. The present production nonetheless belongs only to Law and does not expand another field's games. A cross-reference locates mechanisms and avoids duplicate families; it does not silently add markets, emotions, litigation, or contract stages. The thirteen prepared variants are justified by this family's explicit rules, values, and consequences. Discussing a related mechanism does not imply that the application measures it or incorporates the original study's protocol.

4.6 Verified sources and adaptation boundaries

The conceptual framework connects Coase with experimental research on bargaining over entitlements. Consent versus fixed compensation uses the distinction between property and liability rules. Private values introduce a bilateral-information question without implementing a direct revelation mechanism. The references support additional reading; the formulas, distributions, and numerical examples in this guide belong to the original teaching design. Do not attribute unverified parameter choices to these articles or describe classroom outcomes as reproductions of their estimates. Citation identifies a conceptual connection, not equivalence between a finite teaching protocol and an established experimental design.

Coase, Ronald H. (1960). The Problem of Social Cost. *Journal of Law and Economics*, 3, 1-44. DOI: 10.1086/466560. This connects entitlements and transaction costs; the teaching game reduces the question to two monetary alternatives and a finite protocol. Primary source: <https://www.journals.uchicago.edu/doi/10.1086/466560>.

Hoffman, Elizabeth, and Matthew L. Spitzer (1982). The Coase Theorem: Some Experimental Tests. *Journal of Law and Economics*, 25(1), 73-98. DOI: 10.1086/467008. Hoffman, Elizabeth, and Matthew Spitzer (1986). Experimental Tests of the Coase Theorem with Large Bargaining Groups. *Journal of Legal Studies*, 15(1), article 7, starting p. 149. These are experimental references rather than replicated protocols. Primary sources: <https://www.journals.uchicago.edu/doi/pdfplus/10.1086/467008> and <https://chicagounbound.uchicago.edu/jls/vol15/iss1/7/>.

Calabresi, Guido, and A. Douglas Melamed (1972). Property Rules, Liability Rules, and Inalienability: One View of the Cathedral. *Harvard Law Review*, 85(6), starting p. 1089. The institutional distinction motivates consent versus fixed payment; this is not a statement of law for a real case. Primary source: <https://cyber.harvard.edu/openlaw/DVD/articles/calabresi.html>.

Myerson, Roger B., and Mark A. Satterthwaite (1983). Efficient mechanisms for bilateral trading. *Journal of Economic Theory*, 29(2), 265-281. DOI: 10.1016/0022-0531(83)90048-0. The reference motivates bilateral information problems. This family's discrete protocol does not prove the general result. Primary source: <https://www.sciencedirect.com/science/article/pii/0022053183900480>.

Chang, Yun-chien; David Ta-wei Hung; Chang-Ching Lin; and Joseph Tao-yi Wang (2024). Emotional bargaining after litigation: An experimental study of the Coase theorem. *Journal of Empirical Legal Studies*, 21(4), 786-825. DOI: 10.1111/jels.12397. The four authors and order were verified with the publisher. This remains related reading; this game does not induce litigation or animosity and does not replicate the study. The abstract reports a three-percentage-point lower deal rate in one experimental condition; this game does not reproduce that emotional induction. Primary source: <https://onlinelibrary.wiley.com/doi/10.1111/jels.12397>.

Official JEL classification, American Economic Association: <https://www.aeaweb.org/econlit/jelCodes.php?view=jel>. Public laboratory teaching portal: <https://teaching.beer-lab.org/>. Coverage review combines the available catalog and local materials; this game remains local until publication is authorized.

4.7 Verification and classroom use

The package contains the bilingual application, configurations, four rooms, report, tests, and editable guide sources. Engine verification covers every permitted collective transfer vector together with bilateral proposals, responses, and fixed-compensation choices. Independent boundary checks address account conservation, fees, rejection, dissent under majority, and interval endpoints. Interface verification traverses actual demonstration sessions and checks private visibility, messages,

closure, and report denominators. Captured choices deliberately exercise branches of the procedure. They do not represent a predicted distribution of human behavior, and their displayed averages should not be used as expected classroom results.

Before a real class, create a fresh session and run a short pilot of the selected configuration to check access, reading, and pace. Keep the report hidden during decisions and reveal it at the intended discussion point. If someone disconnects, recover the participant's link and pending page rather than resetting a database containing decisions. This local family uses a database separate from the other games. Public deployment requires its own access and environment checks. Preserve editable sources alongside the PDFs so that updated rules, routes, screenshots, and instructional explanations remain consistent with one another.

Checkpoint

Choose a comparison, verify room filtering, read its numerical example, and run a short pilot. During feedback, report denominators and distinguish monetary resources, distribution, and consent. State which questions the design leaves unanswered rather than infer preferences or legal conclusions that it does not measure.