



Instructor's Guide to Alternating-Offers Bargaining

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 covers the basic and extended editions of the Alternating-Offers Bargaining family. It is written for instructors who want to use the laboratory even if bargaining theory is not their specialty. The first chapters support session preparation and operation.

The theory chapters derive the predictions step by step, distinguish alternative models, and review experimental findings. The final chapters provide a debrief sequence, worked examples, a careful reading of the instructor report, troubleshooting, data guidance, and class plans of different lengths. The activity is not designed to make students memorize one equilibrium offer.

Its purpose is to let them reconstruct why patience, position in the sequence, the horizon, breakdown risk, and outside options affect an agreement. The report should be used to compare a prediction with an observed distribution. It should never be used to attach moral or psychological labels to individual participants.

Author

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For the instructor

Before the session, read the quick guide, the preparation chapter, and the section for the selected variant. For the debrief, review the theory, worked examples, and the recommended sequence for interpreting the report.

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Quick guide

1.1 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.

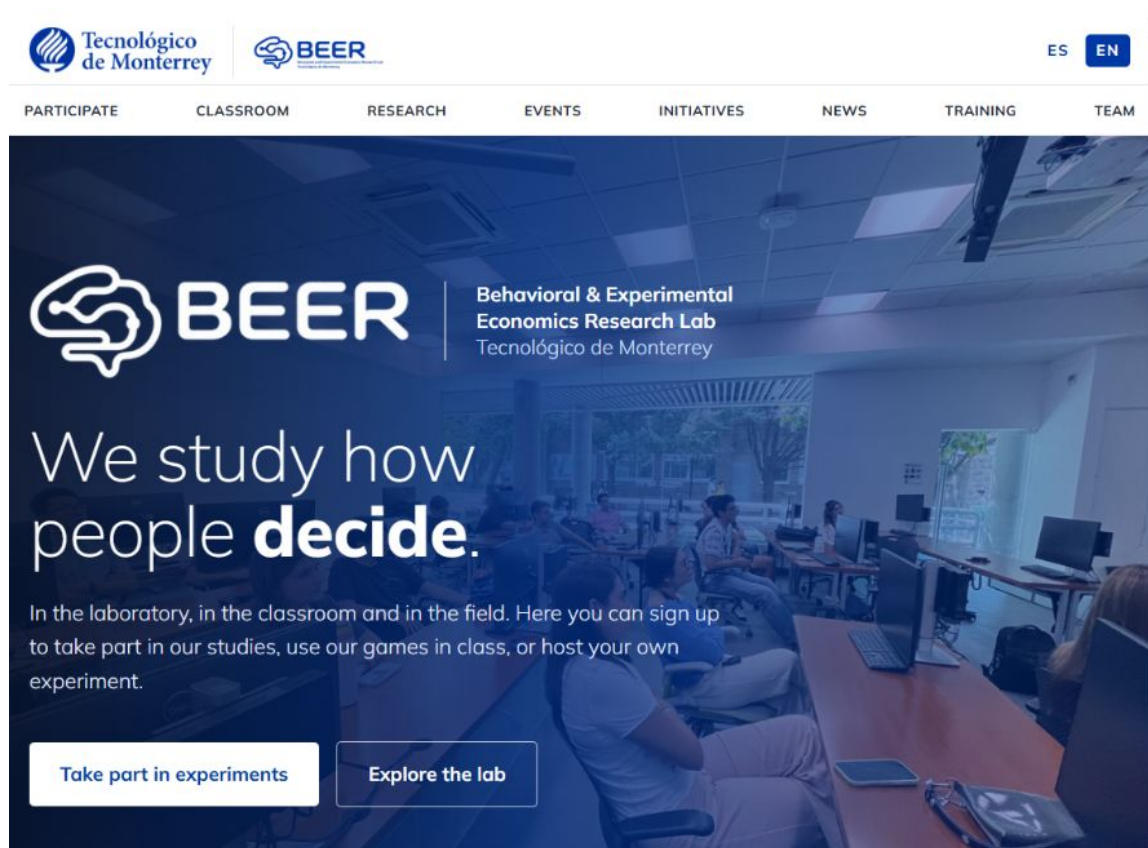


Figure 1.1: Current institutional website. Select **CLASSROOM** in the top navigation menu to open the teaching experiments. Captured on October 7, 2026.

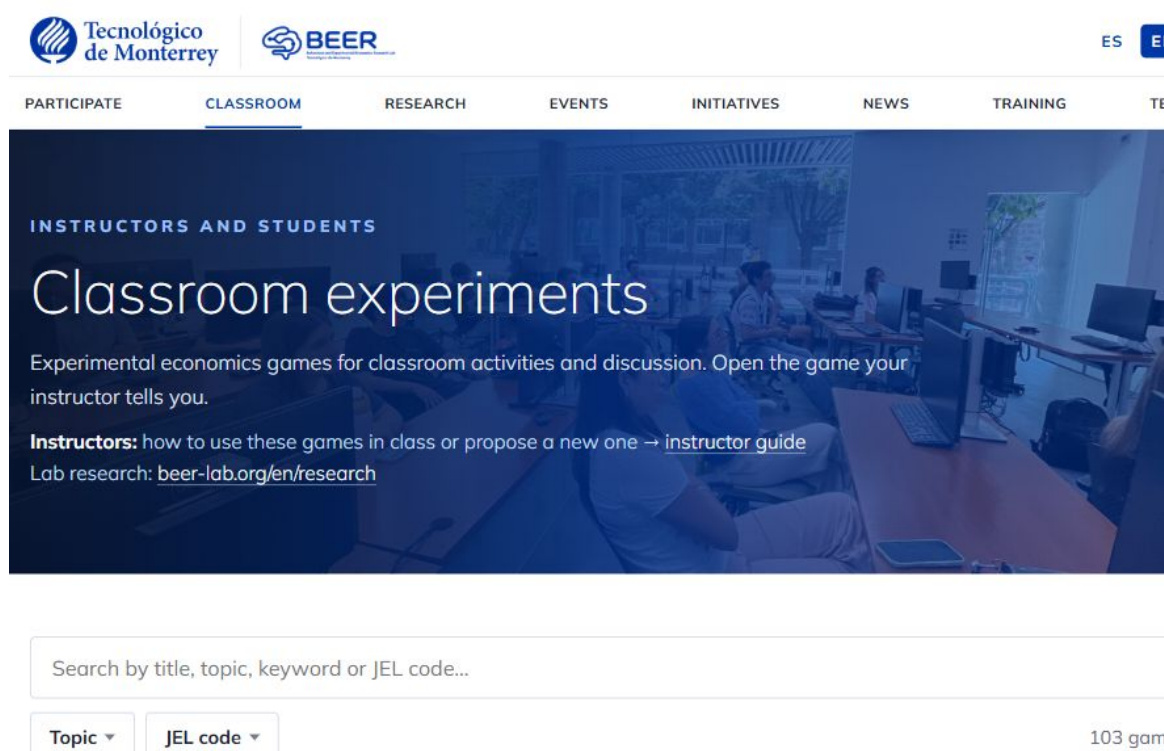


Figure 1.2: Current catalog: search by title, topic, or JEL code. Then locate this family's card and select language and edition. Captured on October 7, 2026.

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.

con ofertas alternadas — una negociación	Negociación con ofertas alternadas / Alternating-Offers Bargaining — BEER Lab Seleccione una variante de este juego. Select a version of this game.
con ofertas alternadas — 10 negociaciones, pareja fija	
con ofertas alternadas — 10 negociaciones, parejas reasignadas	
Offers Bargaining — one negotiation	
Offers Bargaining — 10 negotiations, fixed partner	
Offers Bargaining — 10 negotiations, reassigned partners	
alternada extendida — referencia, una negociación	
alternada extendida — referencia, 10 negociaciones, pareja fija	
alternada extendida — referencia, 10 negociaciones, parejas reasignadas	
alternada extendida — horizonte corto de tres propuestas	
alternada extendida — impaciencia asimétrica	
alternada extendida — costo fijo de demora	
alternada extendida — horizonte aleatorio y riesgo de ruptura	
alternada extendida — opción externa	
alternada extendida — comunicación estructurada	
ternating-Offers Bargaining — baseline, one negotiation	
ternating-Offers Bargaining — baseline, 10 negotiations, fixed partner	
ternating-Offers Bargaining — baseline, 10 negotiations, reassigned partners	
ternating-Offers Bargaining — short three-proposal horizon	
ternating-Offers Bargaining — asymmetric impatience	
ternating-Offers Bargaining — fixed delay cost	
ternating-Offers Bargaining — random horizon and breakdown risk	
ternating-Offers Bargaining — outside option	
ternating-Offers Bargaining — structured communication	

Figure 1.3: Demo contains only the configurations of this game family, in both languages and editions.

Rooms

Current rooms:

[ES] Negociación con ofertas alternadas
[EN] Alternating-Offers Bargaining
[ES] Negociación con ofertas alternadas: extendida
[EN] Alternating-Offers Bargaining: extended

Figure 1.4: Rooms contains the four rooms for this family: basic and extended editions in Spanish and English.

Room: [EN] Alternating-Offers Bargaining

Create a new session

Session Config

[EN] Alternating-Offers Bargaining — one negotiation

Number of participants

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

Create

[Configure session](#) 

App sequence

alternating_offers_game (10 rounds)

Bilingual alternating-offers bargaining game for BEER Lab teaching sessions.

Figure 1.5: 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.

Purpose	Teach sequential bargaining, backward induction, subgame perfection, time discounting, delay, bargaining power, and behavioral departures.
Experimental unit	One pair in one negotiation. In repeated editions, each pair-negotiation is an observation in the report.
Decision	A proposer offers a responder from 0 to 100 ECU. The responder accepts or rejects; after rejection, the positions switch.
Basic edition	One negotiation, ten with a fixed partner, or ten with reassignment; at most five proposals and discount factors of 0.90 for both positions.
Extended edition	Baseline, short horizon, asymmetric impatience, fixed delay cost, breakdown risk, outside option, and structured communication.
Outcome	Agreement and division; when delay destroys value, realized payoffs also depend on the ending stage.
Students EN	https://alternatingoffers.beer-lab.org/room/alternating_offers_en
Instructor	https://alternatingoffers.beer-lab.org/demo
Local test	http://localhost:8031/demo with <code>GAME_FAMILY=alternatingoffers</code> .
Topics	bargaining; backward induction; time discounting; subgame perfection; game theory.
JEL	C72; C78; C92.

Attention

The `alternatingoffers.beer-lab.org` domain and routes are the proposed deployment. Until the laboratory configures its DNS, dedicated oTree process, and database, they should be treated as planned routes. The local instance has been verified.

1.2 Learning objectives

By the end of the activity, students should be able to:

- represent alternating-offers bargaining in extensive form and identify the proposer and responder at every stage;
- explain why today's responder becomes tomorrow's proposer after a rejected offer;
- solve a finite horizon by backward induction and check that every threat is credible in its subgame;
- distinguish multiplicative discounting from a fixed per-period cost and a probability of breakdown;
- relate patience, outside options, and initial position to bargaining power;
- compare the monetary-preference benchmark with offers, rejections, and delay observed in the laboratory;
- interpret an opening-offer histogram, a stage-conditional acceptance rate, and a repeated-negotiation trend;
- distinguish a description, a theoretical prediction, and a causal explanation;
- keep equilibrium, fairness, and efficiency analytically separate;
- propose an experimental treatment that can distinguish two mechanisms producing the same baseline pattern.

The activity and its logic

2.1 Core rules

Two people bargain over a division of 100 ECU. At stage 1, the proposer selects how much to offer the responder. The unoffered amount is retained by the proposer if the responder accepts. Acceptance ends bargaining and assigns the payoffs associated with that stage. Rejection permits the negotiation to continue unless the horizon is reached or a random breakdown occurs. When bargaining continues, the positions switch: the person who rejected becomes the next proposer.

The position switch is the central strategic feature. An offer is not evaluated only against zero. It is compared with what the responder expects to obtain when given the opportunity to propose, after accounting for delay and the possibility that the opportunity disappears. Today's offer therefore embeds a belief about tomorrow's behavior. An apparently generous proposal may optimally purchase immediate acceptance; a low proposal may be costly when it triggers rejection and destroys value.

The interface expresses outcomes in ECU and clearly displays the stage, current position, amount offered to the responder, amount retained by the proposer, and negotiation history. In repeated negotiations, initial proposer status alternates. The design prevents one participant from permanently occupying the same initial position and makes comparisons by initial position more informative.

2.2 Payoffs, discounting, and delay

If an offer of x ECU to the responder is accepted at stage t , the nominal shares are $100 - x$ for the proposer and x for the responder. Under multiplicative discounting, person i receives

$$\pi_i(t) = s_i \delta_i^{t-1},$$

where s_i is the nominal share and δ_i is the discount factor. With $\delta_i = 0.90$, a nominal share of 40 produces 36 realized ECU at stage 2 and 32.4 at stage 3. The absolute loss is proportional to the share and compounds over time.

Under the fixed-cost treatment, realized payoff is

$$\pi_i(t) = \max\{0, s_i - c(t-1)\},$$

with $c = 5$ ECU. Each additional stage subtracts the same absolute amount from both people. Multiplicative discounting and a fixed cost are not interchangeable: under discounting, the absolute loss depends on the nominal share, while a fixed cost does not. Asking what real institution each formulation represents helps students connect the mathematics to bargaining settings.

Under breakdown risk, rejection permits continuation with probability 0.80 and ends bargaining with zero for both people with probability 0.20. The platform uses a disclosed technical cap of eight proposals so the classroom task always terminates. The treatment must not be described as a literally infinite horizon. Breakdown risk creates an expected cost of rejection even when discount factors are high.

2.3 Information and privacy

Each participant knows the parameters and sees the history of the current negotiation. Participants do not receive information about other pairs while making decisions. The aggregate report remains locked until every expected negotiation is complete and still requires the instructor to press a reveal button. This sequence prevents partial results from becoming unintended social signals or focal points.

Participant codes are absent from the report designed for projection. When discussing an example, the instructor should refer to an anonymous offer or sequence, never to the person who selected it. A classroom session is a teaching activity; it is not an assessment of personality, altruism, rationality, or individual ability.

Theoretical foundation

3.1 Rubinstein's contribution

Rubinstein (1982) showed how to model bargaining when two people alternate proposals indefinitely and both prefer earlier agreements. The stationary complete-information model has a unique subgame-perfect equilibrium. If Person 1 proposes first and the discount factors are δ_1 and δ_2 , the shares of a surplus normalized to one are

$$x_1 = \frac{1 - \delta_2}{1 - \delta_1\delta_2}, \quad x_2 = \frac{\delta_2(1 - \delta_1)}{1 - \delta_1\delta_2}.$$

With symmetric patience, $\delta_1 = \delta_2 = \delta$, Person 1 receives $1/(1 + \delta)$ and Person 2 receives $\delta/(1 + \delta)$. At $\delta = 0.90$, the shares are approximately 52.63 and 47.37. The first-mover advantage becomes smaller as both parties become more patient.

The intuition relies on stationarity. Person 2 accepts an offer that gives at least the discounted value of becoming the next proposer. Person 1 retains the residual. That continuation value depends on what Person 1 would accept one period later, so the two value equations are determined jointly. There is no equilibrium delay because the opening proposal already incorporates the responder's strategic alternative.

The platform uses known finite horizons or an explicit probability of breakdown. The infinite-horizon formula is therefore a conceptual reference rather than a mechanical answer for every configuration. A finite game must be solved from its final proposal. Keeping the two models distinct prevents the instructor from calling an offer erroneous merely because it responds correctly to the programmed horizon.

3.2 Backward induction with a finite horizon

Consider five possible proposals, a 100-ECU pie, and common discounting of 0.90. At the fifth and final proposal, the proposer can offer zero to a responder who is indifferent between accepting zero and receiving zero when bargaining ends. The platform adopts acceptance at indifference. At stage 4, the responder knows that becoming the proposer at stage 5 would yield 100 nominal ECU; discounted one step, the relevant threshold is 90. At stage 3, the responder anticipates retaining 10 as the stage-4 proposer, so the discounted threshold is 9. The threshold at stage 2 is 82 and the opening threshold is 17. With integer ECU and upward rounding of an acceptance threshold, the sequence of offers to each stage's responder is 17, 82, 9, 90, and 0.

This prediction does not imply that all five proposals occur. Under monetary preferences, common reasoning, and acceptance at indifference, the initial offer of 17 is accepted. Later offers are off-path

actions that complete the equilibrium strategy. Showing the entire table helps students distinguish a complete contingent strategy from the history that is realized.

The parity of the horizon matters. With three proposals, the initial proposer also controls the final offer and retains a strong advantage. Adding a fourth proposal changes the identity of the final proposer and can cause a discrete change in the opening offer. This sensitivity is a feature of finite bargaining rather than a computational flaw. It explains why results from a short known deadline should not be transferred mechanically to a negotiation with no salient terminal date.

3.3 Subgame-perfect equilibrium

A Nash equilibrium can be supported by a threat that no player would carry out if its decision node were reached. Subgame perfection requires optimal behavior after every possible history. In bargaining, a responder cannot credibly threaten to reject every offer when acceptance would be better than continuation at the relevant node. Backward induction removes those threats and determines stage-specific acceptance thresholds.

A useful teaching sequence asks three questions. First, what would the responder do at the final proposal? Second, given that answer, what is the least costly acceptable offer one stage earlier? Third, can the proposer profitably deviate? This order keeps students from treating an offer as an isolated choice. It also shows that credibility is assessed when a promise or threat must be carried out, rather than when it is announced.

3.4 Patience and bargaining power

A patient party loses less value by waiting and can demand a larger share. In the infinite-horizon model, lowering δ_1 weakens Person 1 even when Person 1 proposes first, because Person 2 understands that delay is more costly for that party. The asymmetric-impatience treatment sets $\delta_1 = 0.75$ and $\delta_2 = 0.95$. Proposal roles alternate inside the negotiation, while discount factors remain attached to the initial positions. Instructors should recall this convention when interpreting late stages.

Patience is not a moral characteristic. A discount factor may represent access to liquidity, deadline pressure, organizational costs, political urgency, or the ability to wait for another opportunity. In labor, commercial, and diplomatic applications, asking where impatience comes from is as important as calculating an equilibrium. An institution that reduces one party's urgency can redistribute surplus without changing that party's social preferences.

3.5 Fixed costs of delay

A fixed cost lowers both parties' realized surplus after every stage. It can represent legal fees, strike costs, idle inventory, or administrative time. Its strategic effect differs from multiplicative discounting because the absolute cost does not scale with a nominal share. At late stages, a small share can be reduced to zero. The solution must be calculated with realized payoffs rather than by inserting a discount factor into Rubinstein's formula.

The interface does not display the simplified backward-induction table under this treatment because that table is designed for multiplicative discounting. An instructor can solve a small fixed-cost example on the board. The instructor report still displays offers, acceptance, and realized payoffs, but omits the "SPE opening offer" card so that a benchmark that ignores the treatment is never presented as a prediction.

3.6 Breakdown risk

When rejection destroys the bargaining opportunity with positive probability, continuation value is multiplied by the probability of survival. At 0.80, even a patient responder may obtain zero before getting the opportunity to propose. Risk can make an offer acceptable when the same offer would be rejected in a safe process. A high realized breakdown rate also reduces joint surplus and may change learning across repeated negotiations.

Random breakdown must be separated from final disagreement. In the first case, the pair chose to continue but an external event ended bargaining. In the second, the known horizon was reached without agreement. The report displays agreement, breakdown, and outside-option use separately. This distinction lets the class ask whether inefficiency came from incompatible choices or from the institution surrounding the negotiation.

3.7 Outside options

The outside-option treatment permits the responder to leave and receive 30 ECU discounted by stage; the proposer receives zero. The option establishes a relevant floor only when it exceeds the value of continuing or accepting. Its effect is not necessarily to add 30 to every proposal. It changes strategic comparisons and the credibility of threats.

A competing job offer, an alternative supplier, or a legal remedy can play a similar role in an application. An outside option should be distinguished from a permanent disagreement payoff. The former can be exercised by one party at a node; the latter describes what happens if no agreement is ever reached. Modeling them differently changes strategies and predictions.

3.8 Communication

The communication treatment provides structured, nonbinding messages before a proposal. A participant may say nothing, suggest equality, express willingness to compromise, or describe an offer as final. Messages neither transfer ECU nor commit a player. The closed vocabulary avoids free-text moderation and preserves basic comparability.

Communication can coordinate expectations, create psychological commitments, or reveal intentions. It can also be strategic and uninformative. An agreement that follows a message does not prove that the message caused it. A causal comparison would require assignment to otherwise comparable conditions with and without communication. In a class, the treatment is useful for stating these hypotheses and describing how a sequence changes.

3.9 Fairness, reciprocity, and rejection

Bargaining experiments often find offers above a narrow monetary benchmark and rejection of strongly unequal offers. These decisions can reflect inequality aversion, negative reciprocity, sharing norms, mistakes, reputation, or beliefs about acceptance thresholds. The same opening offer can therefore arise from distinct mechanisms.

[Ochs and Roth \(1989\)](#) studied sequential bargaining and documented systematic patterns that challenge the simplest equilibrium implementation. [Binmore et al. \(1989\)](#) tested bargaining predictions and emphasized institutional details. [Weg et al. \(1990\)](#) and [Rapoport et al. \(1990\)](#) studied horizon and delay-cost structures, illustrating why procedures cannot be treated as

incidental. The pedagogical lesson is not that one observation rejects all bargaining theory. It identifies which assumptions and model formulation are under pressure.

3.10 Efficiency and distribution

Immediate agreement under pure discounting preserves the 100-ECU joint payoff. Delay reduces it. A 50–50 nominal split accepted late may be more equal and less efficient than an unequal division accepted immediately. The report displays mean joint payoff alongside initial-position payoffs so both dimensions remain visible.

Maximizing surplus should not be presented as a definition of justice. An equal split is not sufficient evidence of efficiency either. The instructor can draw a graph with proposer share on one axis and joint realized payoff on the other. Distributional comparisons move along the first dimension; value destruction changes the second.

Experimental evidence and limits of interpretation

4.1 Recurring findings

The literature commonly finds early agreements, but opening offers that favor responders more than some finite-horizon monetary benchmarks. Very low offers face rejection. First movers often retain an advantage, though it can be smaller or less stable than complete-information monetary models predict. Experience may move some choices toward equilibrium, while it can also create pair-specific norms and focal points.

The patterns depend on the horizon, discount implementation, stakes, information, experience, and protocol. This guide therefore does not provide one universal ‘normal’ offer. Classroom data should be compared with the exact benchmark for the selected configuration and interpreted with the sample size. A mean offer of 40 cannot reveal whether most offers were near 40 or split between 20 and 60.

4.2 What one classroom session can support

A session describes behavior by its participants under the implemented rules. It can show whether a point prediction matches the distribution and can reveal heterogeneity, delay, or learning. It cannot by itself identify a stable preference. If pairs were not randomly assigned to treatments, a difference may reflect composition. If everyone completed one condition before another, it may reflect experience.

Debrief language should match the evidence. It is accurate to say, “In this session, 30 percent of opening offers fell between 40 and 49 ECU.” Claiming that “communication raised offers” requires a counterfactual comparison. Declaring students irrational from a discrepancy is not warranted. Social preferences, comprehension, and beliefs are mechanisms that require additional measurement.

4.3 Statistical independence

In ten fixed-partner negotiations, twenty decisions from one pair are not twenty independent units. Shared history creates dependence. Reassignment reduces exclusive bilateral history but each participant still appears in multiple pairs. A pair-negotiation is a practical unit for the visual report; formal inference may require clustering by participant, pair, or session.

Stage-3 acceptance uses only proposals that reached stage 3 as its denominator.

Accessing the platform

The institutional path begins at <https://beer-lab.org/>. From there, instructors and students open <https://teaching.beer-lab.org/> and select *Alternating-Offers Bargaining*. The family must run as an isolated instance: Demo contains only its 24 configurations and Rooms contains only its four rooms.

Basic ES: https://alternatingoffers.beer-lab.org/room/negociacion_alternada_es

Basic EN: https://alternatingoffers.beer-lab.org/room/alternating_offers_en

Extended ES: https://alternatingoffers.beer-lab.org/room/negociacion_alternada_extendido

Extended EN: https://alternatingoffers.beer-lab.org/room/alternating_offers_extended

Instructors: <https://alternatingoffers.beer-lab.org/demo>

Rooms: <https://alternatingoffers.beer-lab.org/rooms>

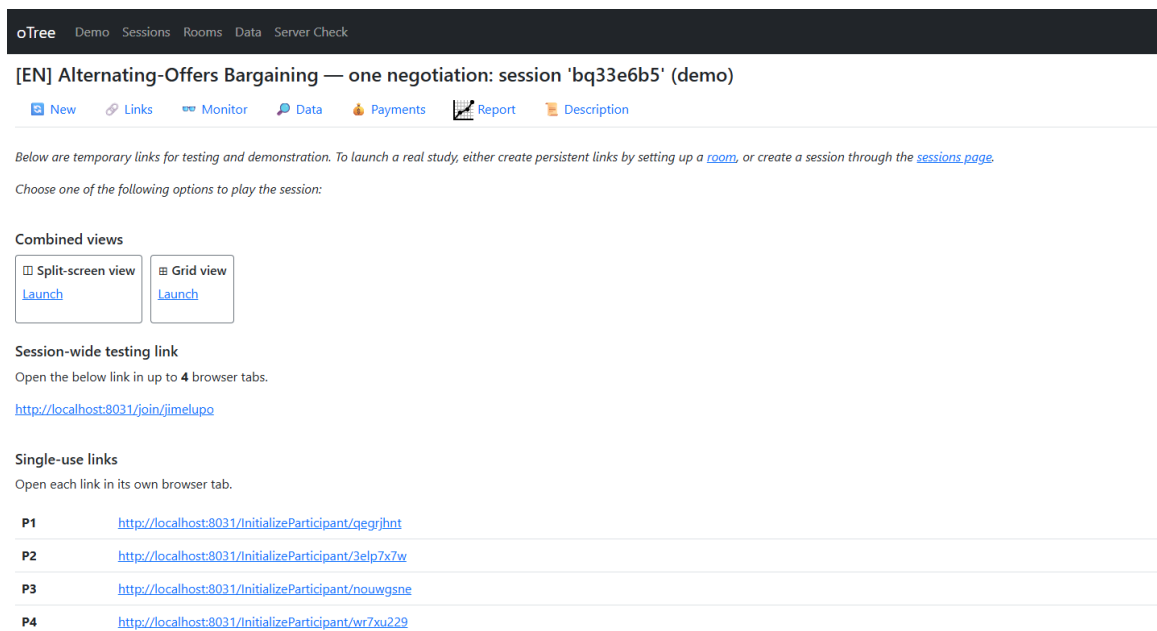


Figure 5.1: Individual links generated for a demonstration session.

5.1 Which link each person uses

Students receive a stable room link. They should not enter Demo or exchange individual links. The instructor enters Demo, selects a configuration, sets the participant count, and creates the session. Individual links can then be distributed, or the associated room can be started. Monitor tracks progress; Report contains the aggregate visualization; Data supports exports.

A “Please wait” screen does not necessarily signal an error. On a room link it means the participant has entered and the instructor has not started the session. During bargaining it normally means that the other person must act. The instructor should check Monitor before refreshing pages or creating a replacement session.

Preparing a session

6.1 Before class

1. Define one primary learning goal. Use the one-negotiation basic configuration for a first introduction; use ten negotiations for learning or reputation.
2. Select a fixed partner to study a bilateral relationship, or reassignment to reduce exclusive history with one counterpart.
3. Confirm an even number of participants. Every active negotiation requires a complete pair.
4. Open two participant links in separate windows and complete a test. Confirm language, maximum stage, discount factors, and treatment.
5. Prepare the decision sequence on the board, but do not announce the predicted offer before play when you want unguided choices.
6. Open Report on the projection computer and leave aggregate outcomes hidden.
7. Decide whether ECU are hypothetical or converted into another reward and communicate one consistent rule.
8. Reserve time for debriefing. Running the activity without discussing results removes much of its pedagogical value.

6.2 Starting the session

Request silence before distributing the room link. Confirm that every participant sees the institutional welcome and accepts the laboratory rules. Instructions display the selected parameters and an example. The comprehension check verifies the first mover, the position switch after rejection, and one discounted-payoff calculation. A participant cannot advance with an incorrect required response.

Do not solve the check publicly before everyone attempts it. If several participants struggle, clarify the rule without suggesting an offer. Separate interface questions from strategic questions. It is appropriate to explain that the slider selects the amount given to the responder; it is not appropriate to recommend a value.

6.3 During bargaining

Watch Monitor and allow both people in a pair to progress. Wait pages synchronize actions. In repeated sessions, initial positions alternate and partners may change according to the configuration. Oral communication should remain prohibited; the only communication permitted is the structured option in its designated treatment.

If someone closes the browser, recover the same participant link from Monitor. Do not substitute a link from another session. If the system reports that the participant does not exist, the database was reset or the code belongs to an earlier session. Create a new session and issue new links.

6.4 Before revealing outcomes

Ask the class for a quantitative prediction. Useful prompts include: “Which interval will contain the median opening offer?”, “What share will agree at stage 1?”, or “Will the initial proposer earn more?” Record two or three predictions. Then confirm that Report shows no pending negotiations and press *Reveal aggregate results*.

This step prevents a retrospective discussion in which every outcome seems obvious. It also separates the equilibrium prediction, the class prediction, and the observation. When all three differ, that discrepancy becomes the object of analysis.

Participant flow



Welcome to the BEER Lab

The Behavioral and Experimental Economics Research Lab in the Department of Economics at Tecnológico de Monterrey is a space designed to learn about economic decision-making through controlled activities.

In this activity you will observe how time, patience, and future opportunities influence bargaining.

General laboratory rules

- Remain silent throughout the activity.
- Do not talk or communicate with other participants.
- Make your decisions individually and privately.
- Follow the instructions shown on screen.
- Do not refresh, close, or leave this page.
- If you have a problem, raise your hand and wait for assistance.

☐ I have read and accept the laboratory rules.

Figure 7.1: Institutional welcome, laboratory purpose, and rules of conduct.

The welcome identifies the BEER Lab in the Department of Economics at Tecnológico de Monterrey, explains the academic purpose, and asks participants to accept rules about silence, privacy, and

use of the interface. It appears once per session.



ALTERNATING-OFFERS BARGAINING · BASIC VERSION

How bargaining works

Finite horizon and common discounting

AMOUNT TO DIVIDE

100 ECU

Resources and unit of account

Initial surplus to negotiate: 100 ECU between the two participants. Discounting and delay costs apply as explained below.

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

This session does not convert ECU into real money.

Negotiations

1

Matching

One interaction

Maximum proposals

5

Discount factors

0.90 / 0.90

Two participants bargain over how to divide 100 ECU. At each stage one person proposes and the other responds.

1. Proposal

The proposer states how many ECU to give the responder and keeps the remainder.

2. Response

The responder may accept or reject. Acceptance ends bargaining with that division.

3. Turn switch

After a rejection, positions switch: the previous responder makes the next proposal.

4. Time and payoffs

Late agreements may be worth less because of discounting, delay costs, or breakdown risk.

Parameters for this session

Figure 7.2: Current instructions for the basic edition: initial resources, decision rules, and experimental units. Continuation 1/2.

The page states pie size, number of negotiations, matching, horizon, and discount factors. Compatible workarounds show the finite-horizon reference solution. The simplified table is omitted for fixed costs, breakdown risk, and outside options because those mechanisms require additional calculations.

The check does not measure advanced theory. It tests the minimum operational rules: who moves first, what follows rejection, and how discounting affects a payoff. Mistakes should diagnose instructions rather than enter the behavioral analysis.

Before every negotiation, the page reminds each participant of the initial position. This is essential in repeated configurations because initial proposer status alternates. Participants should read it before proceeding.

The control simultaneously displays both sides of the nominal division, so the participant does not have to infer what the selected number means. The history lists earlier actions inside the current negotiation without exposing other pairs.

The responder observes the offer, the amount retained by the proposer, and the payoffs produced

Stage	Proposer	Responder	Offer to responder
1	1	2	17 ECU
2	2	1	82 ECU
3	1	2	9 ECU
4	2	1	90 ECU
5	1	2	0 ECU

Two participants bargain over how to divide 100 ECU. At each stage one person proposes and the other responds.

1. Proposal

The proposer states how many ECU to give the responder and keeps the remainder.

2. Response

The responder may accept or reject. Acceptance ends bargaining with that division.

3. Turn switch

After a rejection, positions switch: the previous responder makes the next proposal.

4. Time and payoffs

Late agreements may be worth less because of discounting, delay costs, or breakdown risk.

Parameters for this session

Delay cost

0 ECU

Worked example

In the first proposal, A offers B 40 ECU and keeps 60. If B accepts immediately, A receives 60 and B receives 40. If the same nominal division is reached one stage later with a 0.90 discount factor, each side receives 90% of its nominal amount.

Reference prediction

With a known horizon, backward induction determines what the next mover can obtain after rejecting. The smallest acceptable offer is calculated from the final stage back to the first.

What is commonly observed

Laboratory bargaining often produces more equal divisions, rejection of low offers, and a first-mover advantage that does not match the monetary prediction exactly.

Backward-induction solution

The table reports the offer to the responder at each stage under monetary preferences and acceptance at indifference.

Stage	Proposer	Responder	Offer to responder
1	1	2	17 ECU
2	2	1	82 ECU
3	1	2	9 ECU
4	2	1	90 ECU
5	1	2	0 ECU

Reference opening offer: 17 ECU

Continue

Con tecnología de [oTree](#)

Figure 7.3: Current instructions for the basic edition: initial resources, decision rules, and experimental units. Continuation 2/2.



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

ALTERNATING-OFFERS BARGAINING

Comprehension check

Answer correctly before continuing.

MAXIMUM PROPOSALS

5

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.

Who makes the first proposal?

- ☐ The initial proposer
- ☒ The initial responder

Your answer: The initial responder. The correct answer is The initial proposer. Review your answers. The correct discounted payoff in the example is 36 ECU.

What happens after a rejection if bargaining continues?

- ☒ Positions switch and the other person proposes
- ☐ The same person proposes again

If B would receive 40 ECU at the second stage and B's discount factor is 0.90, what is B's discounted payoff?

36.0

ECU

Continue

Con tecnología de oTree

Figure 7.4: Current comprehension check with an incorrect answer, its specific explanation, and retained responses.

ALTERNATING-OFFERS BARGAINING · NEGOTIATION 1 OF 1

New negotiation

Finite horizon and common discounting

YOUR INITIAL POSITION
Initial proposer

Proposal positions alternate within the negotiation. In repeated negotiations, the person who begins also alternates.

Continue

Con tecnología de [oTree](#)

Figure 7.5: Negotiation start with initial position and parameters visible.

ALTERNATING-OFFERS BARGAINING · NEGOTIATION 1 OF 1

Make a proposal

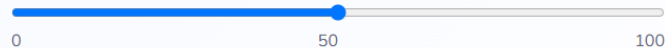
Stage 1 · Proposer 1

PROPOSER
1

Enter how many of the 100 ECU you offer to the other person.

You keep
50
ECUThe other person receives
50
ECU

ECU offered



Send proposal

Con tecnología de [oTree](#)

Figure 7.6: Proposer interface showing the amount offered and retained.

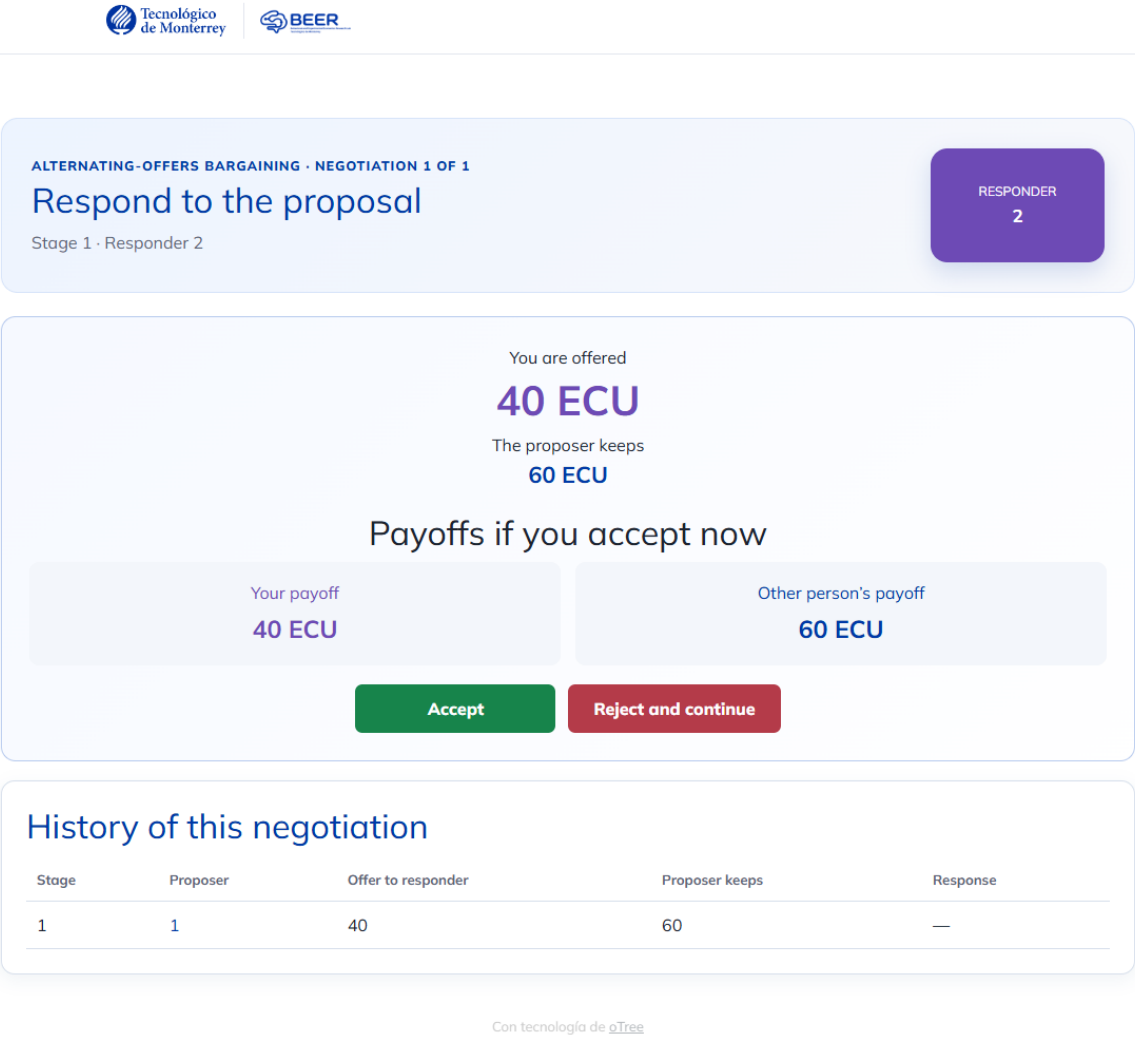


Figure 7.7: Responder interface with acceptance payoffs and available actions.

by immediate acceptance. The outside-option treatment adds a third action. Displayed payoffs incorporate the stage and treatment parameters.

After rejection, the former responder becomes the proposer. The history makes the switch visible and provides a useful debrief example: ask why the counteroffer may be higher or lower than the original offer and how delay changes the remaining realized surplus.

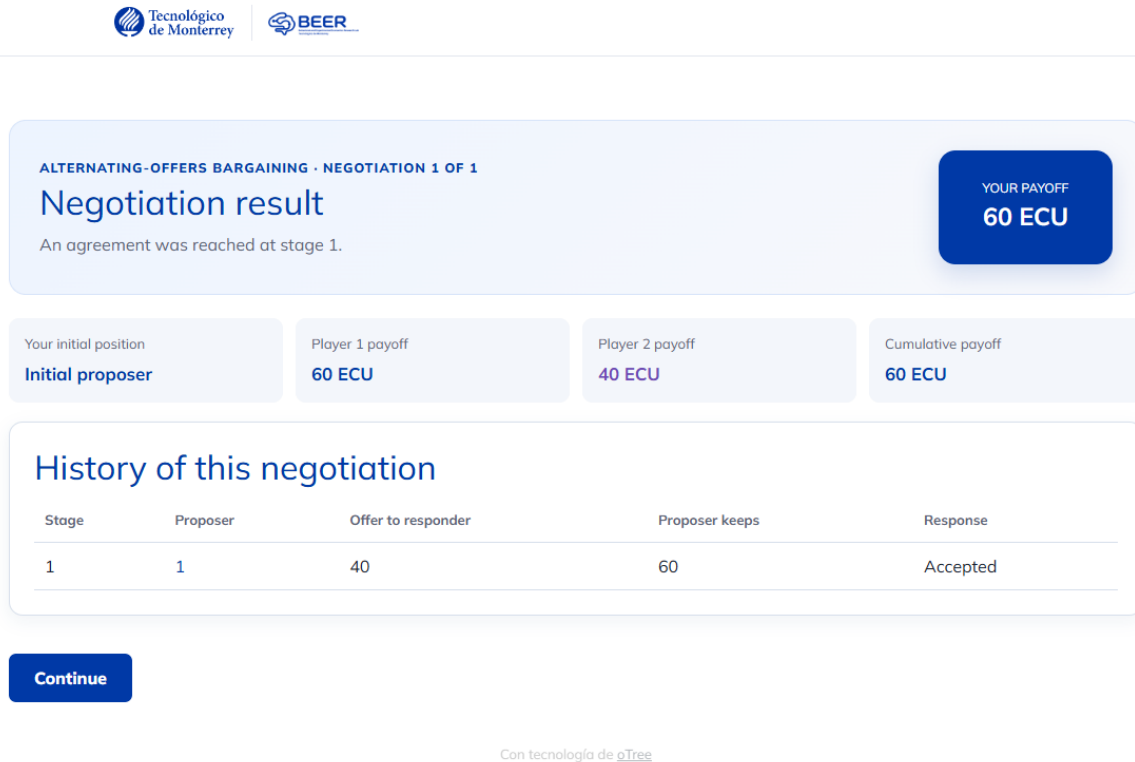


Figure 7.8: Pair result with ending stage, nominal division, and realized payoffs.

The result separates a nominal division from effective payoffs after discounting or delay costs. This prevents a nominal 50–50 division from being mistaken for equal realized payoffs when individual discount factors differ.

The final page states that the activity is complete and asks the participant to wait for the instructor. In repeated versions, the table summarizes agreement, ending stage, and accumulated payoff without exposing other pairs.



ALTERNATING-OFFERS BARGAINING

Activity completed

You have completed the activity. Remain seated and wait for the instructor's directions.

CUMULATIVE PAYOFF
60 ECU

Summary of your negotiations

Negotiation	Your initial position	Result	Final stage	Payoff
1	Initial proposer	Agreement	1	60 ECU

You have completed the activity. Remain seated and wait for the instructor's directions.

Con tecnología de [oTree](#)

Figure 7.9: Explicit closing page and summary of completed negotiations.

Instructor report

8.1 Reveal control

The report counts participants, expected negotiations, completed negotiations, and pending negotiations. While any negotiation is pending, outcomes remain locked. After completion they remain hidden until the instructor presses a button. This two-step protection allows Report to stay projected from the beginning without leaking results.

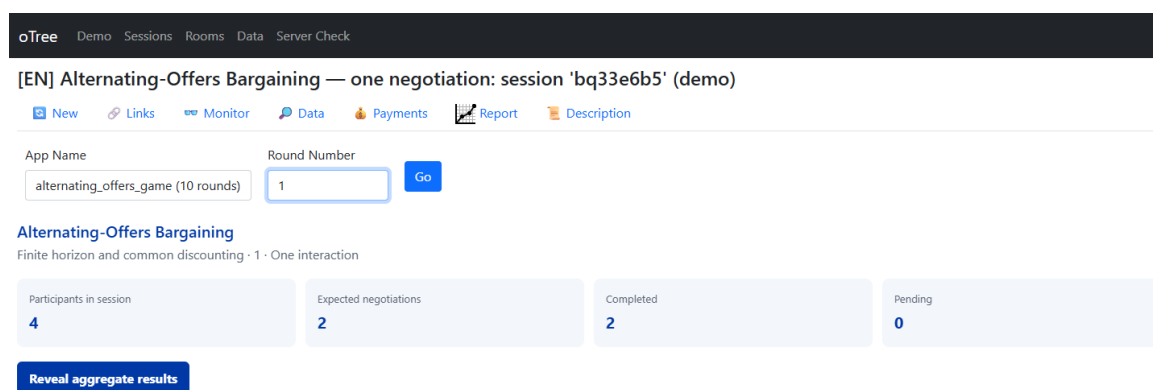


Figure 8.1: Completed report before the instructor reveals aggregate outcomes.

8.2 Recommended reading order

1. Verify coverage: participants, expected negotiations, completed negotiations, and pending negotiations.
2. Identify the agreement rate. Separate random breakdown and outside-option exit when those outcomes are feasible.
3. Display the opening-offer histogram before the mean. Ask where observations are concentrated and whether clusters appear.
4. Compare mean and median. A large difference can signal skewness or extreme values.
5. When shown, compare the SPE opening offer with the distribution. The card appears only for baseline, short-horizon, asymmetric-impatience, and communication treatments.
6. Read the stage table. Each acceptance rate uses observed responses at that stage as the denominator.

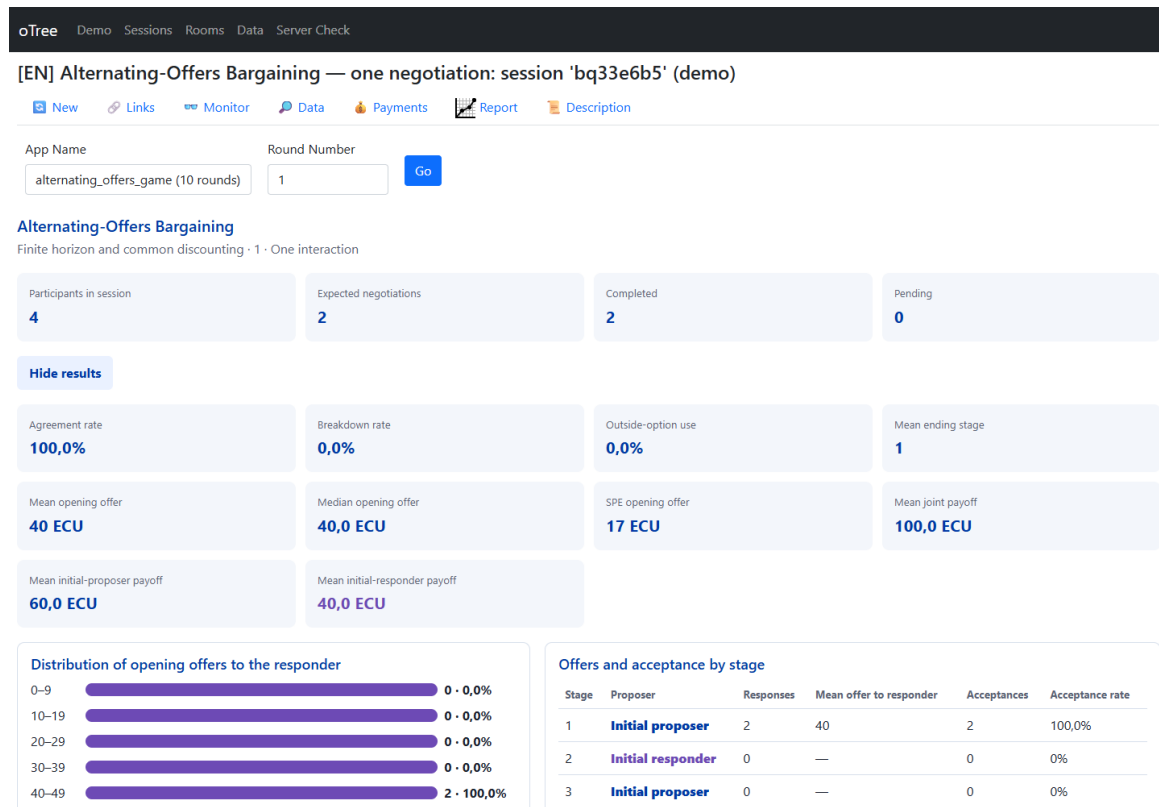


Figure 8.2: Top panel with rates, opening offers, applicable benchmark, and position-specific payoffs.

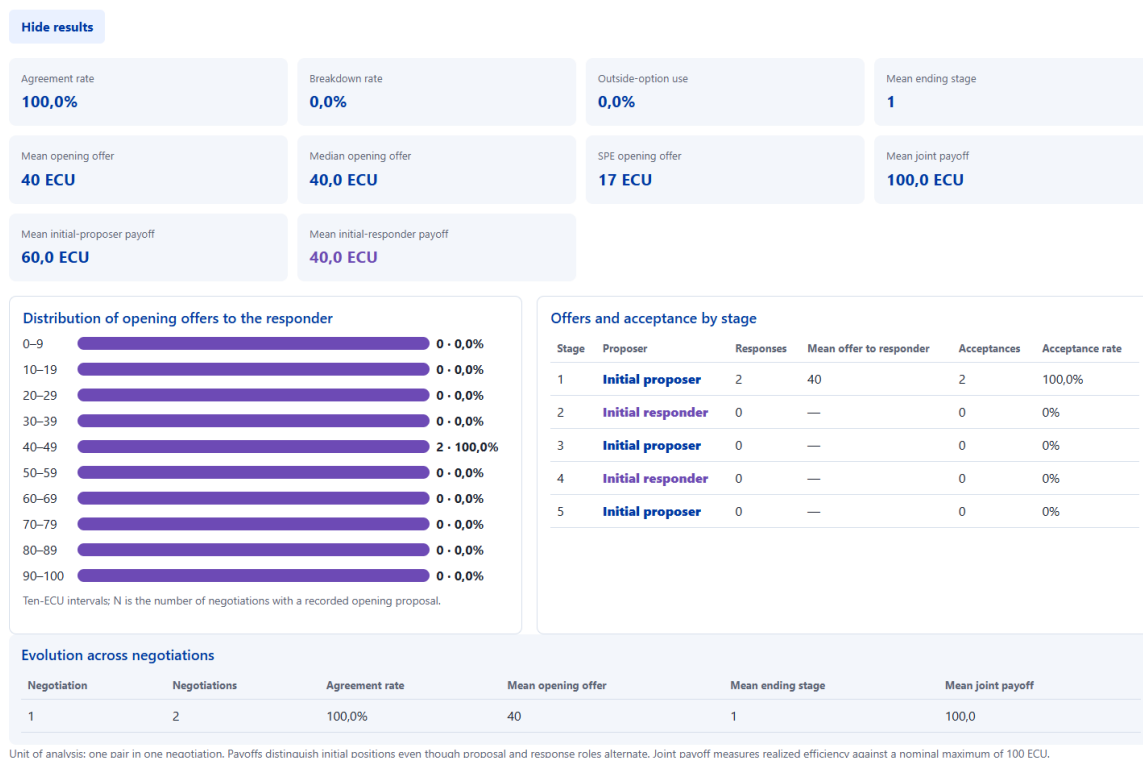


Figure 8.3: Opening-offer histogram, stage acceptance, and trends across negotiations.

7. Compare the mean payoffs of the initial proposer and initial responder. These labels remain tied to the opening positions even though proposal roles alternate later.
8. Interpret mean joint payoff as realized surplus rather than a measure of fairness.
9. In repeated sessions, inspect agreement, opening offer, ending stage, and joint payoff across negotiations.

8.3 The histogram

Intervals have width 10 ECU. An offer of 40 belongs to 40–49. Each bar reports the count and percentage among pair-negotiations with a recorded opening proposal. The histogram prevents an average from hiding a bimodal distribution. A mean of 35 can describe a tight cluster near 35 or a mixture around 20 and 50; those patterns call for different discussions.

Begin with a neutral description: mode, dispersion, tails, and focal values. Then ask which mechanisms are compatible. Concentration at 50 can reflect an equality norm, anticipation of rejection, a simple heuristic, or a desire to secure agreement. The chart cannot distinguish those explanations on its own.

8.4 Acceptance by stage

The stage table states which initial position is proposing, the number of responses, mean offer to the responder, acceptances, and acceptance rate. Late stages contain selected pairs that rejected earlier offers. Directly comparing stage 1 and stage 4 therefore combines a stage difference with a change in pair composition.

The table still reconstructs useful dynamics. If offers rise after rejection and acceptance increases, participants may be learning about thresholds. If offers fall, the switch in position or negative reciprocity may dominate. Use anonymous examples and never identify participants.

8.5 Position payoffs and efficiency

The initial-proposer and initial-responder averages summarize bargaining power associated with moving first. Because proposal roles alternate, these statistics are not the payoffs of every proposer and responder at every stage. They preserve the question of who benefits from opening the negotiation. Repeated configurations alternate the opening position across people so one participant does not retain that advantage permanently.

The maximum nominal joint allocation is 100, but realized joint payoff can be lower after discounting, fixed cost, or breakdown. The difference $100 - (\pi_1 + \pi_2)$ is a useful measure of value lost to delay. Under the outside option, joint payoff can be 30 when the responder exits. That outcome may be privately optimal for the responder while reducing joint surplus.

8.6 Configuration catalog

8.7 Basic configurations

English configuration	Design	Teaching use
<code>alternating_offers_en_1_round</code>	One negotiation	Clean introduction to the game tree, acceptance threshold, and first-mover position.
<code>alternating_offers_en_10_fixed_partner</code>	Ten, fixed partner	Bilateral learning, reputation, reciprocity, and path dependence.
<code>alternating_offers_en_10_random_partners</code>	Ten, reassignment	Aggregate learning with less exclusive bilateral history.

All three basic versions use five possible proposals, discount factors of 0.90 for both initial positions, and a 100-ECU pie. Initial proposer status alternates across repeated negotiations. The Spanish counterparts are `negociacion_alternada_es_1_ronda`, `negociacion_alternada_es_10_pareja_fija`, and `negociacion_alternada_es_10_parejas_aleatorias`.

8.8 Extended configurations

The extended edition contains three baseline counterparts and six treatments. The English names are `alternating_offers_extended_1_round`, `alternating_offers_extended_10_fixed_partner`, `alternating_offers_extended_10_random_partners`, `alternating_offers_extended_short_horizon`, `alternating_offers_extended_asymmetric_impatience`, `alternating_offers_extended_delay_cost`, `alternating_offers_extended_breakdown_risk`, `alternating_offers_extended_outside_option`, and `alternating_offers_extended_communication`.

Each Spanish configuration preserves the treatment under the `negociacion_alternada_extendido` prefix. The extended room filters nine configurations in its own language. Demo lists 24 configurations in total: six basic and eighteen extended. These are not duplicated applications; language and edition are parameters of one bilingual family.

Extended variants and teaching questions

9.1 Short three-proposal horizon

This variant retains symmetric discounting of 0.90 and reduces the maximum to three proposals. The entire sequence can be solved on the board. Ask who controls the last proposal and how that affects the second-stage threshold. Compare the opening offer with the five-stage baseline, while recalling that changing the horizon also changes who makes the final proposal.

One useful activity divides the class: one group solves three stages and the other solves five. Before seeing results, each group writes both the equilibrium opening offer and a behavioral prediction. The comparison shows why backward induction does not imply that a longer horizon always favors the same person. Parity and alternation matter.

9.2 Asymmetric impatience

Person 1 discounts at 0.75 and Person 2 at 0.95, with at most eight proposals. The treatment illustrates how a patient party can capture surplus even without always occupying the proposer role. Ask for a directional prediction before calculation. At every stage, the relevant question is the current responder's continuation value given identity and position.

Avoid saying that a participant "is impatient." The parameter is assigned by the design and represents an institutional condition. Compare realized payoffs by initial position, not only nominal offers, because unequal discount factors can turn a nominally equal allocation into unequal realized payoffs.

9.3 Fixed cost of delay

Both people lose 5 ECU for every elapsed stage; multiplicative discount factors equal one. The treatment isolates linear destruction of value. Agreement at stage 3 subtracts 10 ECU from each nominal share, subject to a floor of zero. Ask whether a common cost eliminates the distributional conflict. It does not, but it raises the joint price of failing to agree.

The simplified benchmark is hidden from the interface and report. For a classroom derivation, begin with two stages. At the final stage, the proposer retains the pie subject to acceptance; at the first stage, the responder compares the current net offer with the realized payoff from becoming the next proposer and paying the delay cost. Make the zero floor explicit.

9.4 Random horizon and breakdown risk

After every rejection, bargaining continues with probability 0.80. The configuration runs ten fixed-partner negotiations, uses discount factors of 0.95, and has a technical cap of eight proposals. It connects bargaining to strikes, litigation, and conflicts where an opportunity can disappear.

Before play, ask whether risk will raise offers or increase acceptance. Both parts require a mechanism: risk weakens the threat to wait, while it may induce a proposer to purchase immediate agreement. The report separates breakdown from final disagreement. In a small class, the realized rate can differ widely from 20 percent by chance, and the instructor should state that sampling uncertainty.

9.5 Outside option

The responder can accept, reject and continue, or exit with 30 ECU discounted by stage. The option is available at every stage. Ask when it binds: an offer of 35 does not automatically dominate when discounting and continuation value affect the comparison. The proposer receives zero after exit, so the option also changes the proposer's incentive.

A job offer, alternative supplier, or unilateral policy can motivate the treatment. The analogy should not be treated as exact. The laboratory option is safe, known, and unilateral, while real alternatives may be uncertain and endogenous.

9.6 Structured communication

Before proposing, a participant selects no message, an equality suggestion, willingness to compromise, or a statement that the offer is final. Messages do not change payoffs and are not binding. Ten fixed-partner negotiations permit reputational responses to language.

Ask the class to classify messages as coordination, promise, signal, or pressure. Then compare messages with actions without showing identities. A statement favoring equality followed by a highly unequal offer may affect later responses. Without a comparable control treatment, describe associations and sequences rather than causal effects.

Worked examples

10.1 Example 1: an immediately accepted offer

Person 1 offers 40 to the responder at stage 1. The responder accepts. With no elapsed delay, realized payoffs are 60 and 40 and joint payoff is 100. The offer exceeds the finite five-stage benchmark of 17 under common 0.90 discounting. That gap does not reveal the motive. It can reflect fairness, anticipation of rejection, or a preference for a secure agreement.

In the report, this pair-negotiation counts as an agreement ending at stage 1, with an opening offer of 40, joint payoff 100, initial-proposer payoff 60, and initial-responder payoff 40. It creates one response and one acceptance in the first-stage row.

10.2 Example 2: rejection and counteroffer

Person 1 offers 20 at stage 1. Person 2 rejects and offers 35 to Person 1 at stage 2, retaining 65. Person 1 accepts. With common discounting of 0.90, realized payoffs are 31.5 for Person 1 and 58.5 for Person 2. Although nominal shares sum to 100, realized joint payoff is 90.

The example corrects an important source of confusion: an “offer” is always the amount given to the current responder. At stage 2, Person 1 is the responder. The report assigns 31.5 to the initial proposer and 58.5 to the initial responder because those labels refer to opening positions.

10.3 Example 3: asymmetric discounting

Suppose $\delta_1 = 0.75$ and $\delta_2 = 0.95$. At stage 3 an offer of 50 to the responder is accepted. If Person 1 opened the negotiation, Person 2 is the stage-3 responder and Person 1 retains 50. Realized payoffs are $50(0.75)^2 = 28.125$ and $50(0.95)^2 = 45.125$. An equal nominal division produces unequal realized payoffs.

The calculation explains why the interface and report separate nominal amounts from payoffs. It also illustrates bargaining power: a patient person retains more value after delay and can sustain a demanding position. Actual outcomes nevertheless depend on proposals and responses, not on discount factors alone.

10.4 Example 4: fixed cost

With a cost of 5 per elapsed stage, an offer of 40 to the responder accepted at stage 4 gives nominal shares of 60 and 40. Three periods of delay subtract 15 from each share, so realized payoffs are 45 and 25 and the joint total is 70. A nominal share of 10 would be reduced to zero by the floor.

Ask which earlier agreement could improve both payoffs. The same nominal division at stage 1 would yield 60 and 40. Delay destroyed 30 ECU without resolving the distributional conflict more favorably. This calculation links bargaining to efficiency.

10.5 Example 5: breakdown risk

After rejection, a pair survives with probability 0.80. If the responder's expected value as the next proposer would otherwise be 60, survival reduces that component to 48 before discounting. A current offer of 45 may be insufficient in a safe process and sufficient when risk lowers continuation value further.

In a realized negotiation, the program may end bargaining and assign zero to both people. That does not mean either person directly chose zero. The action was to reject, and the final outcome combined that action with a random event. A rigorous debrief keeps action, state, and payoff separate.

10.6 Example 6: outside option

A responder receives an offer of 20 and may accept, continue, or exit with a nominal outside option of 30 discounted by stage. At stage 1, exit yields 30 and dominates accepting 20, though continuation may be worth even more. At stage 3 with a 0.90 factor, the option is worth $30(0.9)^2 = 24.3$. The responder compares three alternatives, not the offer against zero.

If the responder exits, the proposer receives zero and joint payoff is 30. Exit can maximize the responder's payoff while destroying potential joint surplus. The tension helps students distinguish individual rationality from collective efficiency.

Instructor debrief sequence

11.1 Describe before explaining

Begin with observation counts and the agreement rate. Ask students to describe the histogram before proposing causes: “the mode is 50,” “offers are dispersed between 20 and 50,” or “the median exceeds the benchmark.” This discipline prevents the first speaker from imposing a psychological story on the class.

Next display the stage table. Emphasize that rates are conditional on reaching a stage. When only a few pairs reach stage 4, one acceptance produces a large percentage. Never compare rates without denominators. In repeated versions, inspect whether opening offers converge, agreement occurs earlier, and joint payoff rises.

11.2 Derive the benchmark

Return to the final stage and ask what the proposer can guarantee. Work backward through the thresholds. Ask one student to explain why today’s responder is tomorrow’s proposer. Write identities next to nodes to avoid confusion. Only then compare the reference opening offer with the observed distribution.

When the treatment adds a fixed cost, risk, or an outside option, reformulate continuation value. Do not reuse the number 17. The platform hides the simplified benchmark in those treatments precisely because another calculation is required. The goal is to show how the logic changes rather than force every institution into one formula.

11.3 Organize rival explanations

Construct three columns: observed fact, compatible mechanisms, and additional evidence. For example, the fact may be many 50-ECU offers. Compatible mechanisms include inequality aversion, a focal norm, fear of rejection, and simplified reasoning. Useful evidence might include stated thresholds, an information treatment, automated responders, or incentivized belief measurement.

For low-offer rejection, consider reciprocity, inequity, reputation, mistakes, and continuation value. Ask which treatment could distinguish mechanisms. An outside option changes the floor; reassignment reduces bilateral reputation; communication exposes messages; unequal discounting changes incentives. This exercise turns debriefing into experimental design.

11.4 Close with limits

Ask the class to write three statements: one description, one theoretical comparison, and one open question. A careful example is: “The median opening offer was 40; it exceeded the finite benchmark of 17; a controlled comparison is needed to determine whether the gap reflects fairness or anticipated rejection.” The format preserves rigor without requiring advanced econometrics.

Feedback script

Do not reveal the mean first. Show the distribution, obtain a description, and derive the benchmark from the final node. Then connect the discrepancy to mechanisms and to a variant capable of distinguishing them.

Class plans

12.1 A 50-minute session

Allocate five minutes to rules and comprehension, ten to one negotiation, five to class predictions, ten to revealing the distribution, fifteen to backward induction, and five to closure. Use `alternating_offers_en_1_round`. The objective is to understand alternation, continuation value, and the difference between equilibrium and equality.

Do not attempt every variant. Solve the five-proposal horizon, interpret the histogram, and end with one question about patience. If the class finishes early, ask what a fourth or sixth possible proposal would change.

12.2 An 80-minute session

Use the baseline and one variant: the short horizon or asymmetric impatience. Reserve ten minutes for instructions, fifteen for the first condition, ten for predictions, fifteen for the second, twenty for comparison, and ten for closure. If the same students complete both, acknowledge the possible order effect.

Before the second condition, each group writes a directional prediction and mechanism. During the debrief, compare the distribution, ending stage, and position-specific payoffs. Do not draw a strong conclusion from a small difference; use it to identify what a stronger design would require.

12.3 A 110-minute session

Use ten fixed-partner negotiations or the breakdown-risk treatment. Allocate fifteen minutes to preparation, thirty to play, twenty to trends, twenty to theory, fifteen to group analysis, and ten to closure. Groups can analyze agreement, distribution, delay, and bargaining power.

Repetition makes learning and reputation visible. Ask groups to distinguish changes over rounds from differences across pairs. Under random breakdown, compare the realized rate with the programmed probability without expecting exact equality in a small sample.

12.4 A game-theory class

Focus on complete contingent strategies and subgame perfection. Draw a three-proposal tree, derive the equilibrium, and then use the observed session. Ask which threats are eliminated

and why the equilibrium opening offer is accepted. Compare the finite game with Rubinstein's stationary infinite-horizon solution.

12.5 A labor or industrial-organization class

Interpret the pie as relationship rent, delay as a strike or transaction cost, and the outside option as another job or supplier. Discuss which institutions affect patience: credit, insurance, inventory, and information. State the limits of the analogy because the classroom design abstracts from collective bargaining, contracts, and richer asymmetries.

12.6 Data, export, and analysis

The custom export includes session code, configuration, language, edition, treatment, anonymous participant code, negotiation number, group, position, initial role, matching, maximum stages, both discount factors, fixed cost, continuation probability, outside option, agreement, breakdown, exit, ending stage, individual payoff, and completion status. For each of eight technical stages it includes offer, response, message, and continuation draw.

One row represents one person-negotiation. Group variables are repeated for both people. Keep one row per group and negotiation when constructing pair outcomes; keep both rows for individual payoffs. Document every filter, and never treat duplicated group outcomes as independent evidence without adjustment.

To reproduce the histogram, select one opening offer per pair-negotiation and form intervals 0–9, 10–19, through 90–100. For a stage acceptance rate, divide accepted responses by nonmissing responses at that stage. For agreement, divide by completed negotiations. For joint payoff, sum both realized payoffs.

With fixed partners, statistical errors may need grouping by pair or person depending on the question. With reassignment, observations form a network of dependence. A classroom debrief does not require standard errors, but the issue is a useful demonstration that experimental design determines the correct analysis.

12.7 Common problems and solutions

Situation	Recommended action
"Please wait" after entering a room	Normal until the instructor starts the room session. Check Rooms and Monitor before creating another session.
Waiting during a stage	The counterpart must act. Use Monitor to locate the incomplete pair.
Participant does not exist	The link is old or the database was reset. Create a new session and issue new links.
Odd participant count	Add a test participant or reduce the total before starting; do not leave one person unmatched.
Demo lists other games	The deployment is not isolated. Check <code>GAME_FAMILY=alternatingoffers</code> , process, port, and database.

Situation	Recommended action
Report remains locked	Inspect pending negotiations; a closed browser tab may prevent completion.
SPE offer is absent	Intentional for fixed cost, breakdown risk, and outside option because the simplified benchmark omits those mechanisms.
Wrong language appears	Select a room and configuration in the same language and avoid reusing an earlier session.
Empty results	Confirm Report targets <code>alternating_offers_game</code> and an active negotiation.
A bar looks disproportionate	Read its count, percentage, and denominator; one observation has large weight in a small class.

Frequently asked questions for nonspecialists

13.1 Should I teach the solution before students play?

For a first behavioral session, collect decisions before revealing the benchmark. Explain all rules and check comprehension without stating the theoretical offer. Derive the solution afterward. If the objective is to practice backward induction, the order can be reversed, but behavior is then explicitly guided.

13.2 Does a 50–50 offer prove a preference for equality?

No. It is compatible with equality, but also with a focal point, anticipated rejection, risk reduction, or a simple heuristic. Identifying motives requires additional measurements or treatments. Use the result to formulate hypotheses rather than assign a trait.

13.3 Is rejecting a positive offer irrational?

That cannot be decided without the continuation value, discount factors, outside option, and preferences. Even with monetary preferences, rejection can be optimal when the next position has sufficient value. Under fairness or reciprocity preferences, rejection can maximize utility while reducing money.

13.4 Why can the SPE opening offer be 17 rather than about 47?

Seventeen is produced by the finite five-proposal game with a known terminal proposer and integer ECU. A responder share near 47 belongs to the stationary infinite-horizon model with common 0.90 patience. They are different models. The comparison is a lesson about horizon rather than a software inconsistency.

13.5 What does immediate agreement mean?

It means that the opening proposal was accepted. It is efficient in the limited sense of avoiding discounting, but does not indicate whether the split was equal or whether either person liked it.

Report stage and distribution separately.

13.6 May I compare two course sections?

You may describe the difference, but cannot attribute it to treatment when composition, order, instructor, and time also differ. For a stronger comparison, randomly assign conditions within one session and hold instructions constant.

13.7 Why alternate initial positions in repeated negotiations?

Alternation lets each person experience both positions and prevents accumulated payoff from depending permanently on who started. With fixed partners it can also generate reciprocal responses. The report labels positions separately in every negotiation instead of treating someone as a permanent proposer.

13.8 Instructor checklist

13.9 Before

- Select the objective and configuration; verify route and domain.
- Confirm an even participant count and test two links in independent windows.
- Read the horizon, discount factors, fixed cost, risk, and outside option.
- Open Monitor and Report and leave projected outcomes hidden.
- Prepare prediction questions and the debrief sequence.

13.10 During

- Maintain silence and private choice; allow no communication outside the treatment.
- Answer rule questions without recommending decisions.
- Keep pairs synchronized and identify pending participants.
- Do not reveal aggregate results before completion.

13.11 After

- Verify coverage and denominators before interpreting percentages.
- Show the distribution before the average.
- Derive the benchmark appropriate to the treatment.
- Discuss fairness, efficiency, and equilibrium separately.
- Phrase conclusions as evidence from the session.
- Export data and document the session if it will be reused.

13.12 Maintaining the family

The family runs with `GAME_FAMILY=alternatingoffers`. The filter retains only `alternating_offers_game`, its 24 configurations, and four rooms. If the variable is missing or unknown in production, the service should fail instead of exposing the full catalog. Each hostname requires its own process and database under the laboratory deployment architecture.

To add a variant, declare an explicit treatment key in `settings.py`; do not filter by display text. Add labels in both languages, adapt instructions and calculations, update the report and export, run ES and EN bots, inspect Demo and Rooms, capture real sessions, revise both guides, and confirm that the local server restarted with the new code.

Do not silently change a parameter in a configuration that has already been used when historical comparability matters. Create a new name or document a version. Keep code, guides, screenshots, and test evidence in Git. A deployment reset should follow the laboratory's database and export procedures.

Glossary

- Agreement** Acceptance of a proposal that ends bargaining.
- Breakdown** Random termination after rejection in the relevant treatment.
- Bargaining power** Capacity to obtain a larger share through position, patience, information, or alternatives.
- Continuation value** Expected utility from rejecting and moving to the next stage.
- Discount factor** Proportion of value preserved after one period of delay.
- Horizon** Maximum number or probabilistic structure of possible proposals.
- Initial proposer** Person who makes the first proposal in a negotiation.
- Initial responder** Person who responds to the opening proposal.
- Nominal share** Division of the 100 ECU before time-related costs.
- Outside option** Alternative one party can exercise outside continued bargaining.
- Realized payoff** Final ECU after discounting, cost, breakdown, or exit.
- Stage** One opportunity to make and respond to a proposal.
- Subgame perfection** Requirement that strategies remain optimal after every possible history.

References and recommended reading

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