



Instructor Guide to Mediation, Verification, and Peace Guarantees

Bargaining, information, compliance, and third-party commitment

Behavioral and Experimental Economics Research Lab
Department of Economics



First edition | October 2026

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

How to use this guide

This guide supports an instructor who wants to use a three-person bargaining exercise to teach international mediation. It covers preparation, the participant sequence, theoretical predictions, evidence, treatment comparisons, reporting, data export, and discussion. A first-time user can run the reference version by following Chapter 1. Later chapters explain why the third party has a real payoff, why recommendation is nonbinding, and why agreement must be separated from implementation.

The guide has three reading paths. The quick implementation chapter is sufficient for a supervised reference session. Chapters 2 and 3 explain bargaining, participant screens, information, bias, verification, and guarantees. Chapter 4 covers the report, data and facilitation. Chapter 5 provides exercises, cases, adaptations, ethics and a literature map. Every monetary amount refers to Experimental Currency Units (ECU). ECU are an experimental unit of account; they are not automatically pesos, dollars, or course points.

Author

This guide was prepared by Stanislaw Maldonado, research professor in the Department of Economics at Tecnológico de Monterrey, Monterrey Campus. For questions or suggestions about its content, please contact the author at stanislao.maldonado@tec.mx.

For the instructor

This guide follows the English-language interface. Spanish configurations implement the same mechanisms and accounting. During play, project only the completion panel. Reveal aggregate choices after all relevant decisions have closed, and never connect participant codes with names, seats, or student records.

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Quick implementation guide

1.1 Basic facts

Purpose	Examine when third-party recommendation facilitates agreement and how information, bias, verification, guarantees, and withdrawal change bargaining.
Experimental unit	One group of three real participants: disputant A, disputant B, and third party M.
Basic edition	One encounter, ten rounds with a fixed group, or ten rounds with rematched groups while roles remain fixed.
Extended edition	Neutral recommendation, observation without recommendation, biased incentive, private information, compliance verification, own-resource guarantee, and voluntary withdrawal.
Decision	M makes the institutional decision or recommendation allowed by the variant; A offers B a share; B accepts or rejects; A may later honor or violate an accepted agreement.
Payoff	Agreement: A receives $30 + 100 - s$, B receives $30 + s$, and M normally receives $40 + 20$. Conflict gives the winner 110, the loser 10, and M 40. Extensions modify only stated components.
Topics	International mediation, bargaining, private information, verification, peace guarantees, and compliance.
JEL	A22, C78, C92, D74, F51, F53.
Participants	A multiple of three; at least six for rematching. Six is the suggested demonstration count.
Suggested duration	35–45 minutes for one encounter; 55–75 minutes for six or ten rounds plus discussion.
Public host	Proposed family host: https://peacemediation.beer-lab.org/ . Deployment remains pending.

Canonical routes The proposed participant room is https://peacemediation.beer-lab.org/room/peace_mediation_en. The extended room is https://peacemediation.beer-lab.org/room/peace_mediation_extended. Instructors use <https://peacemediation.beer-lab.org/demo> and <https://peacemediation.beer-lab.org/rooms>.

What participants will see

Participants see their own role, the public institutional rules and their group's outcome. Only M sees the private state before recommending. After the last round, the final screen remains open while the instructor starts discussion.

1.2 Access and session creation

Start at <https://beer-lab.org/en/> and select **CLASSROOM**. The teaching catalog at <https://teaching.beer-lab.org/en/> can be searched by title, topic, or JEL code. Locate *Mediation*, *Verification*, and *Peace Guarantees*, choose English, and decide whether the class needs the basic or extended room. The public host listed above is the planned address; before class, verify that deployment is complete and use the exact link supplied by the laboratory.

The basic room contains one encounter, ten fixed-group rounds, and ten rematched rounds. The extended room contains one reference configuration and six institutional changes. A room is a waiting area; a configuration defines the game. Select the configuration first, enter a participant count, and confirm that the form requires complete groups of three. Rematching requires at least six participants because a single trio cannot be reassigned. If attendance is not a multiple of three, do not invent an automated mediator and do not allow an incomplete trio to begin. Move the surplus student to an observer role outside the software or postpone the session.

After creating the session, display the shared room link or QR code. Keep the administrative report on the instructor's device. Ask students to enter once, avoid reloading after they receive a role, and report a connection problem privately. The system retains A, B, and M roles across rounds. In the rematched version, counterparts change but a participant who began as M remains M. Explain this before starting because students often interpret a new group as a new role.

Checkpoint

Before admitting participants, verify the language, edition, treatment, active rounds, matching rule, and participant count. Open one participant link in a private window and confirm that the title and instructions match the planned session. Keep the report hidden and check that the completion count begins at zero.

1.3 A 45-minute reference lesson

Allocate five minutes for entry and the rules, five for comprehension, ten for the decisions, and twenty for discussion. Reserve five minutes for delays. In a one-encounter class, use at least two trios so that the report can contain both agreement and conflict. Ask M to think privately about what recommendation might be accepted, A to compare agreement with the conflict lottery, and B to decide from the actual offer rather than from a general opinion about fairness.

Do not lecture on the predicted bargaining range before choices if the aim is discovery. After decisions close, reveal the report and begin with a descriptive question: did offers follow recommendations? Then ask whether offers inside the mutually acceptable range were accepted. Only after students describe the data should the instructor derive the expected conflict payoff of 60 ECU for each disputant under equal strength. This order turns the derivation into an explanation of observed behavior rather than an answer supplied in advance.

Feedback script

“The third party did not divide the resource and could not force acceptance. What, then, could the recommendation change? Compare the recommendation, A’s offer, and B’s response. Separate the informational, focal, and incentive explanations before deciding which one fits our session.”

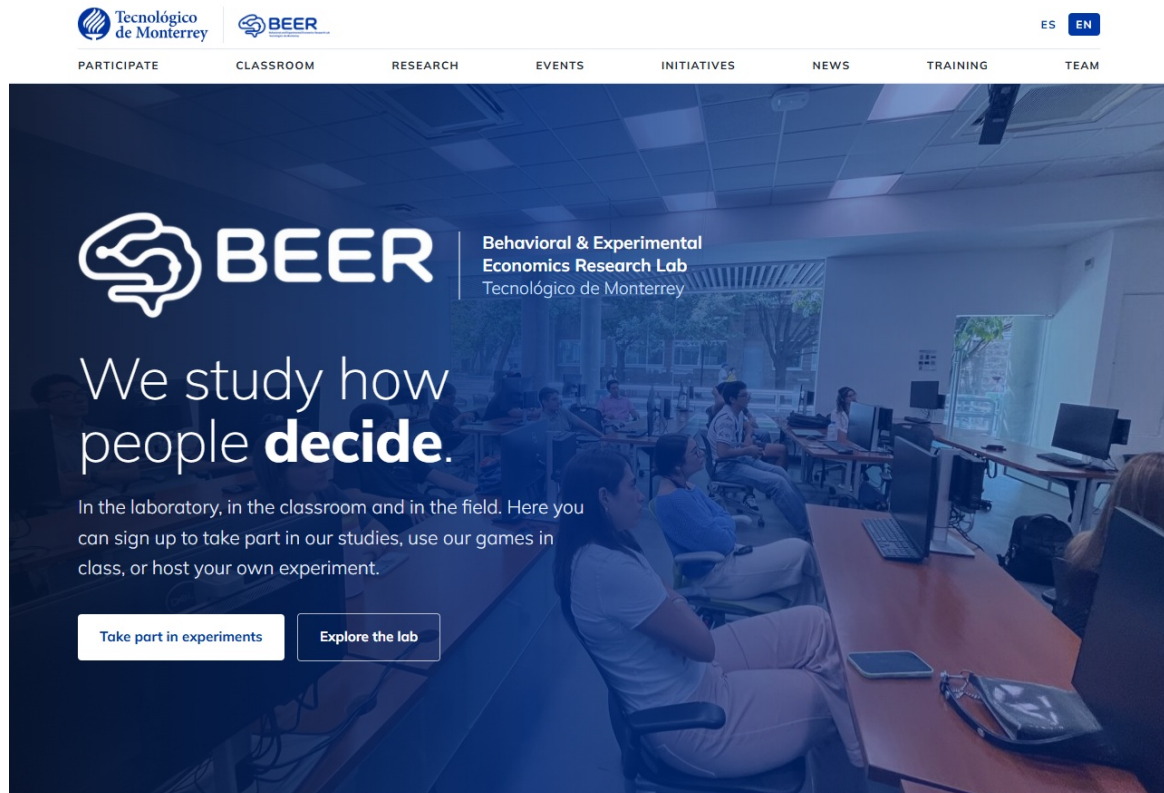


Figure 1.1: Current institutional website. Select CLASSROOM to open the teaching catalog.

The screenshot displays the BEER Lab website interface. At the top, there are logos for 'Tecnológico de Monterrey' and 'BEER', along with language selection buttons for 'ES' and 'EN'. A navigation bar includes links for 'PARTICIPATE', 'CLASSROOM', 'RESEARCH', 'EVENTS', 'INITIATIVES', 'NEWS', 'TRAINING', and 'TEAM'. The main banner features the text 'INSTRUCTORS AND STUDENTS' and 'Classroom experiments', followed by a description: 'Experimental economics games for classroom activities and discussion. Open the game your instructor tells you.' It also includes links for 'Instructors: how to use these games in class or propose a new one → instructor guide' and 'Lab research: beer-lab.org/en/research'. Below the banner is a search bar with the placeholder 'Search by title, topic, keyword or JEL code...'. Under the search bar are dropdown menus for 'Topic' and 'JEL code', and a count of '103 games'. Two game cards are visible: 'Electoral Accountability and Political Selection' and 'Aggregate Demand and Aggregate Supply', each with a brief description and associated JEL codes.

Electoral Accountability and Political Selection
Study how the prospect of remaining in office changes an officeholder's behavior and how information allows voters to choose between politicians with different types. Basic: One encounter or four encounters with fixed or reassigned groups. Extended: Eight treatments on continuation, information, types, office value, term limits, and audits.
electoral discipline political accountability political selection

Aggregate Demand and Aggregate Supply
Understand how spending choices aggregate into demand and how equilibrium with supply determines output and prices. Basic: One period, ten periods with the same economy, or ten periods with reassigned economies. Extended: Demand expansion and contraction, supply shock, fiscal stimulus, capacity, expectations, and coordination.
aggregate demand aggregate supply price level potential output

Figure 1.2: Teaching catalog. Search by title, topic, or JEL code and choose language and edition.

Demo

[ES] Mediación y garantías de paz — una interacción
[ES] Mediación y garantías de paz — 10 rondas, grupo fijo
[ES] Mediación y garantías de paz — 10 rondas, grupos reasignados
[EN] Mediation and Peace Guarantees — one encounter
[EN] Mediation and Peace Guarantees — 10 rounds, fixed group
[EN] Mediation and Peace Guarantees — 10 rounds, rematched groups
[ES] Mediación y garantías de paz — extendida: referencia
[ES] Mediación y garantías de paz — observación sin recomendación
[ES] Mediación y garantías de paz — incentivo sesgado
[ES] Mediación y garantías de paz — información privada
[ES] Mediación y garantías de paz — verificación del cumplimiento
[ES] Mediación y garantías de paz — garantía con depósito propio
[ES] Mediación y garantías de paz — retiro voluntario
[EN] Mediation and Peace Guarantees — extended: reference
[EN] Mediation and Peace Guarantees — observation without recommendation
[EN] Mediation and Peace Guarantees — biased incentive
[EN] Mediation and Peace Guarantees — private information
[EN] Mediation and Peace Guarantees — compliance verification
[EN] Mediation and Peace Guarantees — own-resource guarantee
[EN] Mediation and Peace Guarantees — voluntary withdrawal

Mediación, verificación y garantías de paz / Mediation, Verification, and Peace Guarantees — BEER Lab

Seleccione una variante
de este juego. Select a
version of this game.

Figure 1.3: Family-only demo page with the twenty bilingual configurations.

Rooms

Current rooms:

[ES] Mediación, verificación y garantías de paz
[EN] Mediation, Verification, and Peace Guarantees
[ES] Mediación, verificación y garantías de paz — extendida
[EN] Mediation, Verification, and Peace Guarantees — extended

Figure 1.4: Four family-only rooms: basic and extended editions in both languages.

Room: [EN] Mediation, Verification, and Peace Guarantees

Create a new session

Session Config

[EN] Mediation and Peace Guarantees — one encounter

Number of participants

Complete groups of 3 participants. Use a multiple of 3; minimum 3.

Create

[Configure session](#) 

App sequence

peace_mediation_game (10 rounds) Mediation, Verification, and Peace Guarantees / Mediación, verificación y garantías de paz.

0 participants present

Start links

These URLs will stay constant for new sessions, even if the database is recreated.

Room-wide URL

Here is the room-wide URL anyone can use. Don't use this link when testing in multiple tabs on the same browser, because all tabs will be assigned to the same participant, using a cookie.

http://127.0.0.1:8197/room/peace_mediation.en

Figure 1.5: English basic room. Only the three matching variants appear in its selector.

The reference bargaining environment

2.1 Sequence and resources

Theoretical foundation

The reference game has many possible agreement outcomes. Standard expected-payoff reasoning identifies the 30–70 range but does not determine which share is selected. Recommendation can coordinate expectations inside this range. Social preferences, risk attitudes, distrust, and strategic beliefs can shift observed offers or responses without changing the programmed monetary accounts.

A and B bargain over a joint resource worth 100 ECU. Each disputant also has a reserve account of 30 ECU. M has a separate base account of 40 ECU. M first recommends how many units of the joint resource should go to B. The recommendation is public and nonbinding. A then chooses a final offer s to B from 0, 10, 20, through 100. If B accepts, A keeps $100 - s$ and B receives s ; each adds the 30 ECU reserve. M adds a 20 ECU agreement bonus to the 40 ECU base account. If B rejects, the offer disappears and conflict follows.

In reference conflict, A and B each win with probability one half. Both pay a 20 ECU conflict cost. The winner receives the 100 ECU resource in addition to the reserve and then pays the cost, for 110. The loser keeps the reserve and pays the cost, for 10. M does not fight and keeps 40. The expected conflict payoff for each disputant is therefore

$$0.5(110) + 0.5(10) = 60.$$

An accepted offer produces $130 - s$ for A and $30 + s$ for B. Relative to conflict, A weakly prefers agreement when $130 - s \geq 60$, or $s \leq 70$. B weakly prefers agreement when $30 + s \geq 60$, or $s \geq 30$. Shares from 30 through 70 form the risk-neutral bargaining range. This range predicts where agreement can occur, not a unique division.

2.2 Why M is a real participant

M receives a real payoff because mediation is not a decorative message. A third party with no consequences could click arbitrarily, making it difficult to discuss selection, bias, or costly guarantees. The 40 ECU base account ensures that M is not exposed to the conflict lottery. The 20 ECU bonus creates an interest in agreement while leaving distributional preferences neutral in the reference condition. The biased treatment adds a transparent distributional interest. The guarantee treatment places M's own resources at risk. These changes give observable content to "mediator incentives."

Instructions

Resources and unit of account

Joint resource: 100 ECU. A and B reserve: 30 ECU per disputant.

M base account: 40 ECU. M agreement bonus: 20 ECU.

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

This session does not convert ECU into real money.

A and B bargain over a joint resource of 100 ECU. A proposes how many ECU B receives and keeps the remainder. Each disputant adds a reserve of 30 ECU to the payoff.

Resources and payoffs

Joint resource 100 ECU	A and B reserve 30 ECU	Conflict cost for each disputant 20 ECU	M base account + M agreement bonus 40 + 20 ECU
----------------------------------	----------------------------------	--	---

Decision sequence

1. M decides or recommends when the variant permits it.
2. A submits a final offer for B.
3. B accepts or rejects.
4. If B rejects, conflict occurs. If B accepts, some variants include a compliance decision.

Variant: Neutral recommendation

M recommends a division before the offer. The recommendation does not bind A or B. M receives a bonus only if agreement is reached.

If B accepts an offer s and A honors it, A receives $30 + 100 - s$ and B receives $30 + s$. M starts with 40 ECU and earns 20 ECU for agreement when participating; variant-specific costs and bonuses are stated below.

If B rejects, a lottery determines who obtains the resource. The winner receives 110 ECU and the loser 10 ECU; both disputants pay a 20 ECU conflict cost. M keeps 40 ECU.

M's recommendation states how many ECU of the resource should go to B. It is public and nonbinding.

Example

If A offers 50 to B, B accepts, and A honors, A receives 80 ECU and B receives 80 ECU. M receives 60 ECU when participating. These amounts include reserves and variant costs.

Basic version · One encounter.

Continue

Figure 2.1: Participant instructions state the resource accounts, decision sequence, and treatment-specific rule.



MEDIATION, VERIFICATION, AND PEACE GUARANTEES · ROUND 1 OF 1



Comprehension check

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.

Answer using the rules of your variant. If a guarantee is available, assume A honors the agreement; if M may withdraw, assume M participates.

Variant: **Neutral recommendation.** M recommends a division before the offer. The recommendation does not bind A or B. M receives a bonus only if agreement is reached.

A offers 50 ECU to B, B accepts, and A honors. How many ECU does B receive?

In that agreement, how many ECU does M receive in your variant?

If B rejects, do A and B face the conflict lottery while M keeps 40 ECU?

Continue

Figure 2.2: Comprehension questions require participants to calculate the agreement and mediator accounts.



MEDIATION, VERIFICATION, AND PEACE GUARANTEES · ROUND 1 OF 1



Comprehension check

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.

Answer using the rules of your variant. If a guarantee is available, assume A honors the agreement; if M may withdraw, assume M participates.

Variant: **Neutral recommendation**. M recommends a division before the offer. The recommendation does not bind A or B. M receives a bonus only if agreement is reached.

A offers 50 ECU to B, B accepts, and A honors. How many ECU does B receive?

Your answer: 0. The correct answer is 80. $30 + 50 = 80$ ECU.

In that agreement, how many ECU does M receive in your variant?

If B rejects, do A and B face the conflict lottery while M keeps 40 ECU?

Continue

Figure 2.3: Incorrect quiz responses receive field-specific feedback while correct responses remain.

M's recommendation does not bind A because mediation differs from arbitration. A remains responsible for the definitive offer, and B retains the right to reject. This distinction is central to the debrief. A correlation between recommendation and offer may reflect persuasion, information, a focal point, or shared reasoning. It is not mechanical implementation. The observer treatment helps identify the added value of an explicit recommendation relative to the presence of a third person who benefits from agreement.

2.3 Comprehension and feedback

The comprehension page asks students to evaluate an equal accepted offer and the consequence of rejection. The correct B account is 80: reserve 30 plus share 50. M's correct account depends on the active variant. It is 60 in the reference, 70 under the biased incentive at a share of 50, and 55 when verification subtracts a 5 ECU monitoring cost. The page identifies an incorrect answer, preserves correct answers, and states the relevant rule. Ask the student to recalculate rather than announcing the answer to the room.

An error in the quiz is not an experimental outcome. It is evidence that the instructions need another reading. Students commonly omit the reserve, subtract the conflict cost after agreement, or assume M owns the joint resource. Use the diagram: A and B share the 100 ECU resource, each has a separate 30 ECU reserve, and M has a separate 40 ECU base. The conflict cost applies only after rejection. M's agreement bonus comes from the experimental account; it is not deducted from A or B.

2.4 Participant screens and classroom flow

2.4.1 Welcome, role, and recommendation

The welcome page states conduct rules and requires affirmative acceptance. It avoids revealing a participant's role before the rules are accepted. The role page then identifies A, B, or M. In the private-information condition, M sees the realized conflict probability while A and B see only the prior: 30 or 70 percent, equally likely. In all other conditions, the 50 percent conflict probability is public.

On the recommendation page M chooses a share in 10 ECU increments. The page repeats the treatment rule because the same numerical recommendation can have different meanings under neutral, biased, or privately informed mediation. Other participants wait until M submits. The observer treatment skips this decision. The withdrawal treatment also skips it when M withdraws. The waiting screen does not reveal another person's choice.

2.4.2 Offer, response, and implementation

A sees M's public recommendation, the guarantee status, or the fact that M withdrew. A then submits the definitive share for B. The offer page includes the agreement and conflict formulas so A can compare the two paths. B sees the recommendation and institutional status, A's actual offer, and the three accounts that would follow immediate honor. The display labels those accounts as conditional on acceptance. B then accepts or rejects.

In reference, observer, bias, private information, and withdrawal variants, acceptance closes the interaction. Verification and guarantee variants introduce a separate implementation page for A. This timing is deliberate. If the software automatically equated acceptance with compliance,



BEER LAB · TEACHING GAMES

Mediation and peace agreements

You will participate as A, B, or M in a negotiation over a joint resource. M is a third party; A and B are the disputants.

The activity examines when a third party facilitates agreement and how outcomes change when it has information, incentives, or compliance instruments.

Participation rules

- Decide individually and do not communicate outside the screens.
- Do not reveal your role or private information during the activity.
- Amounts are stated in ECU, Experimental Currency Units.
- Wait for the system to display each decision.

☐ I have read the rules and agree to participate.

Start

Figure 2.4: Welcome page with institutional identity, purpose, and participation rules.

Your role: Third party M

Your role remains fixed throughout the session.

Third party M

Probability that A wins the conflict: **50%**.

Neutral recommendation

M recommends a division before the offer. The recommendation does not bind A or B. M receives a bonus only if agreement is reached.

Continue

Figure 2.5: The role screen identifies the decision position and the information available.

M's recommendation

There is no recommendation this round.

State how many ECU of the joint resource you recommend assigning to B.

Recommended share for B

M recommends a division before the offer. The recommendation does not bind A or B. M receives a bonus only if agreement is reached.

Send recommendation

Figure 2.6: M recommends a share for B. The interface repeats any private information and institutional incentives relevant to M.

A's final offer

M's recommendation for B: **50 ECU**

Decide how many ECU of the joint resource to offer B.

Share offered to B

If B accepts an offer s and A honors it, A receives $30 + 100 - s$ and B receives $30 + s$. M starts with 40 ECU and earns 20 ECU for agreement when participating; variant-specific costs and bonuses are stated below.

If B rejects, a lottery determines who obtains the resource. The winner receives 110 ECU and the loser 10 ECU; both disputants pay a 20 ECU conflict cost. M keeps 40 ECU.

Send offer

Figure 2.7: A observes the institutional status and makes the final offer.

students could not study implementation problems. A chooses to honor or divert 20 ECU from B. The exact consequences depend on verification or guarantee, and every relevant probability, cost, deposit, and penalty is disclosed before the choice.

2.4.3 Result and final screen

The result page labels agreement or conflict, repeats the offer and institutional state, explains implementation, and shows A, B, and M accounts. Each participant also sees their own round and cumulative payment. In conflict, the page identifies the lottery winner. Under verification it distinguishes honor, detected diversion, and undetected diversion. Under guarantee it records whether the deposit was transferred.

The final screen has no submit button. It tells participants to wait for the instructor and prevents accidental re-entry into another active round. In repeated sessions, participants see a result after every active round and the final screen only after the selected last round. Inactive technical rounds remain outside the participant path and outside the custom export.

B's response

M's recommendation for B: 50 ECU

Review the offer and decide whether to accept it.

Share offered to B

50 ECU

Payoffs if you accept

A	B	M
80 ECU	80 ECU	60 ECU

Review the offer and decide whether to accept it.

☐ Accept

☐ Reject

Confirm response

Figure 2.8: B compares the offer with the consequence of rejection.

Agreement compliance

M's recommendation for B: **50 ECU**

Share offered to B: **50 ECU**.

B accepted. Decide whether to honor the division or divert 20 ECU from B to A.

If B accepts, A chooses honor or diverts 20 ECU from B. Automatic verification costs M 5 ECU and detects diversion with 75% probability. Detection restores the diversion and subtracts an additional 10 ECU from A.

☐ Honor the agreement

☐ Divert 20 ECU

Confirm implementation

Figure 2.9: After acceptance in compliance variants, A separately decides whether to honor or divert.

Round result

Accepted agreement

M's recommendation for B: **50 ECU**

Share offered to B: **50 ECU**.

The agreement was honored.

A · Payoff

80 ECU

B · Payoff

80 ECU

M · Payoff

60 ECU

Your role: Party A · Your payoff this round: **80 ECU**.

Cumulative payoff: **80 ECU**.

Continue

Figure 2.10: Round result separates agreement, implementation, institutional consequence, and payoffs by role.

Session complete

Keep this screen open and wait for the instructor. Aggregate outcomes will be discussed after decisions close.

Cumulative payoff

60 ECU

Figure 2.11: The final screen stays open after the selected last round.

Mediation, information, and bias

3.1 Recommendation versus observation

The observation treatment keeps M in the group and preserves the 20 ECU agreement bonus but removes M's recommendation. This is a demanding control. Comparing the reference only with an unmediated two-person game would change both group composition and third-party incentives. Here the same person is present and cares about agreement, but A and B receive no suggested division. A difference in offers or acceptance can therefore be associated with the recommendation channel rather than mere observation.

Three hypotheses are useful. First, a recommendation may create a focal point, reducing strategic uncertainty even when it contains no private facts. Second, A may treat M's advice as a fairness judgment and fear rejection after deviating. Third, B may use the recommendation as an entitlement. These channels predict different patterns. A focal-point account predicts smaller absolute deviations from the recommendation and clustering on simple shares. An entitlement account predicts that B becomes less willing to accept offers below the recommendation. A pure observation account predicts similar behavior in the reference and observer conditions.

When discussing results, avoid saying that mediation “worked” only because agreement was high. A recommendation that induces agreement at a very unequal division may benefit the mediator and one disputant while reducing the other's payoff relative to conflict expectations. Display recommendation, offer, acceptance, and payments together. Ask whether the recommendation expanded the set of acceptable offers or merely selected one point inside a pre-existing range.

3.2 Biased incentives and credibility

In the biased treatment, M receives the usual 20 ECU agreement bonus and another 10 ECU if an accepted offer assigns B no more than 50 ECU. The rule is common knowledge. M therefore prefers agreement but also has a monetary reason to favor A. An equal accepted offer pays M 70. A share of 60 accepted by B pays M 60. The recommendation remains cheap talk in the sense that M cannot enforce it, but its incentives are no longer neutral.

The simple prediction “bias destroys mediation” is incomplete. A biased mediator may be discounted by the disadvantaged party, yet advice that asks the favored party to concede can be especially credible. Kydd's model highlights this logic: a mediator believed to favor one side may transmit unwelcome information to that side more credibly than a neutral mediator that always wants peace. Rauchhaus emphasizes conditions under which impartial information about reservation points is valuable. The classroom should compare assumptions, not treat one article as a universal verdict.

Use the session data to separate what M recommends from what A offers. If biased M recommends

50 or less but A offers more, the incentive affected advice without determining the offer. If B rejects low offers more frequently after low recommendations, participants may be discounting biased advice or reacting to perceived unfairness. With a small class, these are descriptive patterns, not statistical estimates. Pooling sessions is appropriate only when configurations and procedures are documented consistently.



MEDIATION, VERIFICATION, AND PEACE GUARANTEES · ROUND 1 OF 1



M's recommendation

There is no recommendation this round.

State how many ECU of the joint resource you recommend assigning to B.

Recommended share for B

▼

M earns an additional 10 ECU when agreement is reached and B's share is at most 50 ECU. Everyone knows this incentive.

Send recommendation

Figure 3.1: Biased condition: the extra mediator payment is visible before M recommends.

3.3 Private information

In the private-information treatment, M observes whether A's probability of winning conflict is 30 or 70 percent. A and B know that both states are equally likely. When A is strong, expected conflict payoffs are 80 for A and 40 for B. Mutually acceptable shares for B run from 10 through 50. When A is weak, expected conflict payoffs are 40 for A and 80 for B, and shares run from 50 through 90. The equal share is on the boundary of both ranges.

M can condition the recommendation on the state. A and B can infer information from the recommendation, but credibility depends on M's incentive to secure agreement. If M always recommends 50 to maximize its chance of agreement, the recommendation pools the states and reveals little. If M recommends a lower B share when A is strong and a higher share when A is weak, advice is informative. A may then move the offer, and B may update before accepting. The instructor report reveals the state only after choices close, permitting comparison of state, recommendation, offer, and response.

Fey and Ramsay show why an independent information source matters. If disputants can simply lie to a mediator who knows nothing else, mediation may add no equilibrium outcomes beyond direct communication. The experiment gives M an exogenous signal rather than asking M to infer types from unrestricted chat. This keeps the information structure controlled and lets students see the difference between holding information and possessing enforcement authority.



MEDIATION, VERIFICATION, AND PEACE GUARANTEES · ROUND 1 OF 6



M's recommendation

There is no recommendation this round.

M's private information

Only M observes that A's probability of winning the conflict is **70%**.

State how many ECU of the joint resource you recommend assigning to B.

Recommended share for B

Before recommending, M privately observes whether A has a 30% or 70% chance of winning the conflict. A and B know that both states are equally likely but do not observe which one occurred.

Send recommendation

Figure 3.2: Only M observes the realized conflict probability before making the recommendation.

3.4 Verification, guarantees, and compliance

3.4.1 Why acceptance is not enough

An agreement is a promise about a future allocation. It is not the same as implementation. International settlements can be vulnerable when compliance is hard to observe or when a party becomes exposed after taking a cooperative step. The extended game therefore adds a second decision only after B accepts. A can honor or divert 20 ECU from B. This structure keeps bargaining and implementation distinct in the data.

Without an institution, diversion increases A's account by 20 and reduces B's account by 20. Verification changes expected consequences by producing information and a conditional response. A guarantee changes incentives by committing third-party resources and a penalty. These mechanisms should not be bundled into a single "strong intervention" treatment because monitoring and enforcement solve different problems.

3.4.2 Verification

Verification is automatic after an accepted agreement and costs M 5 ECU. If A honors, the agreed accounts stand and M receives 55: base 40 plus agreement bonus 20 minus monitoring cost 5. If A diverts, verification detects the act with probability 0.75. Detection restores the 20 ECU to B and subtracts a 10 ECU penalty from A. With an equal offer, detected diversion yields 70 for A, 80 for B, and 55 for M. Undetected diversion yields 100 for A, 60 for B, and 55 for M.

For a risk-neutral A, the incremental expected return to diversion is $0.25(20) + 0.75(-10) = -2.5$ ECU relative to honor. Honor is therefore the monetary best response, although imperfect detection can still produce profitable realized violations. This distinction is useful for teaching expected incentives. A student who diverts and escapes detection earned more in that realization, but did not choose the higher expected-payoff action under the programmed probabilities.

Verification is not a magic label. The probability and cost are explicit. M pays the monitoring cost after an agreement regardless of whether A violates, so the institution consumes resources even when it deters violation. Ask whether the gain in compliance justifies the cost. Compare total group earnings and the distribution among roles. A class may prefer a costly institution because it protects B even if average total ECU decline.

3.4.3 Own-resource guarantee

Before recommending, M may place a 20 ECU deposit behind the agreement. B observes this choice. If A honors, the deposit returns to M and the normal agreement accounts apply. If A violates without a guarantee, A gains 20 and B loses 20. If A violates while the guarantee is active, M's deposit transfers to B and A pays a 30 ECU penalty. At an equal offer the result is 70 for A, 80 for B, and 40 for M. Thus A receives 10 less from violating than from honoring, B is made whole, and M bears a real loss if deterrence fails.

The design makes the guarantee credible through three features. It is public before B responds, it uses M's own account, and the consequence is automatic after violation. A verbal promise with no resource at risk would not identify a guarantee mechanism. M may offer the guarantee because it increases B's willingness to accept and, if deterrence works, the deposit returns. M nevertheless faces downside risk when A violates. This creates an observable choice about intervention.

Walter argues that third-party guarantees facilitate settlement only when outsiders have incentives and capacity to uphold their promise. Fortna documents how monitoring, guarantees, and other

agreement provisions are associated with peace durability. The classroom treatment translates these ideas into a minimal payoff structure. It does not claim that a 20 ECU deposit represents troops, sanctions, or legal authority. It represents costly capacity that is lost upon failed implementation.



MEDIATION, VERIFICATION, AND PEACE GUARANTEES · ROUND 1 OF 6

Third-party decision

Will you back the agreement with a 20 ECU deposit from your own account?

☐ Yes, offer the guarantee

☐ Do not offer a guarantee

Before recommending, M may guarantee with a 20 ECU own-resource deposit. After acceptance, A may honor or divert 20 ECU. With a guarantee, diversion transfers the deposit to B and subtracts 30 ECU from A. If A honors or B rejects, the deposit returns to M.

Confirm decision

Figure 3.3: M decides whether to place personal resources behind the agreement.

3.4.4 Voluntary withdrawal

M chooses whether to participate before A offers. Participation allows recommendation and makes the 20 ECU agreement bonus available. Withdrawal leaves M with 40, removes the recommendation, and lets A and B continue. The treatment captures the supply of mediation. Observed mediation cases are selected: third parties may enter disputes where they expect agreement, influence, or reputational benefit.

Compare the participation rate with subsequent agreement, but do not interpret the raw difference causally. M's choice selects cases. A high agreement rate after participation may reflect mediator effectiveness, M's ability to identify easy disputes, or both. Random assignment between mandatory and voluntary mediation would be needed to isolate the effect of entry. The classroom report displays participation so students can identify this selection problem rather than overlooking it.

Agreement compliance

M's recommendation for B: **50 ECU**

Share offered to B: **50 ECU**.

B accepted. Decide whether to honor the division or divert 20 ECU from B to A.

If B accepts, A chooses honor or diverts 20 ECU from B. Automatic verification costs M 5 ECU and detects diversion with 75% probability. Detection restores the diversion and subtracts an additional 10 ECU from A.

☐ Honor the agreement

☐ Divert 20 ECU

Confirm implementation

Figure 3.4: A later chooses whether to honor the accepted division.

Third-party decision

Will you participate as mediator in this round?

☐ Participate and recommend

☐ Withdraw

Before the offer, M decides whether to participate or withdraw. If M participates, M recommends and may earn the agreement bonus. If M withdraws, A and B bargain without a recommendation and M keeps only the base account.

Confirm decision

Figure 3.5: Voluntary withdrawal makes the supply of mediation an explicit participant decision.

Instructor report and data

4.1 Reveal protocol

The instructor report initially shows participants, completed groups, and pending groups. Aggregate outcomes remain hidden. This protects ongoing decisions from a live information cascade. When all relevant groups finish, select **Reveal results**. The report stores the reveal state in the browser tab for convenience; use **Hide results** before projecting another session.



Figure 4.1: Before reveal, only progress is visible.

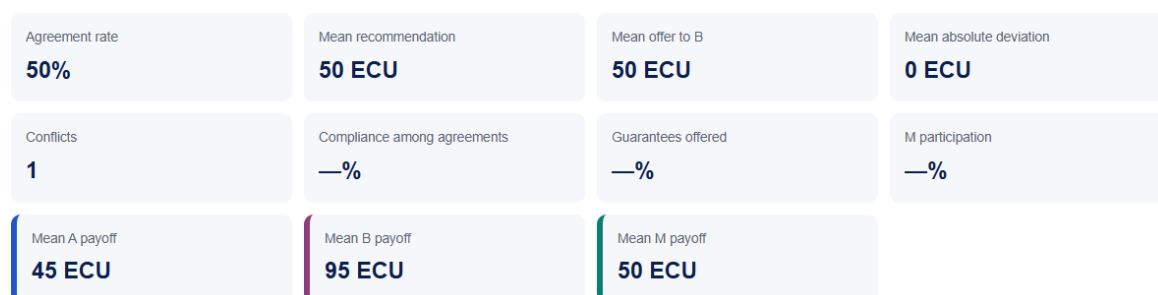


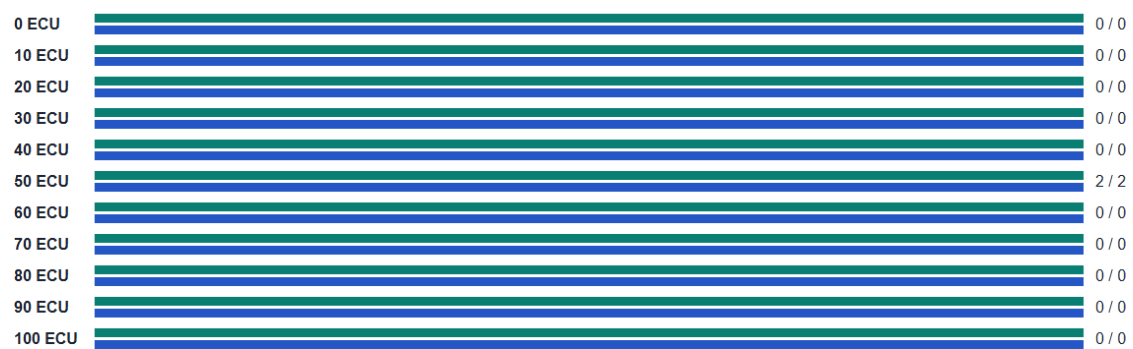
Figure 4.2: After reveal, the report displays aggregate outcomes and group pathways.

The first panel gives agreement, mean recommendation, mean offer, mean absolute deviation, conflicts, compliance, guarantees, mediator participation, and mean payoffs by role. A dash is not zero. It means the indicator does not apply or no observation is complete. Guarantee rate applies only to the guarantee treatment; mediator participation applies only to voluntary withdrawal; compliance applies to accepted agreements with an implementation decision.

The round table supports repeated sessions. Look for convergence of offers toward recommendations, adaptation after conflict, or changes in entry and compliance. The group table preserves the state and full pathway. Signed deviation is offer minus recommendation: positive values mean A offered B more than M recommended. Mean absolute deviation in the summary ignores direction and measures alignment.

Distribution of recommendations and offers

Recommendations n=2 · Offer to B n=2



Acceptance by offered amount

ECU	Response n	Accept n	%
0	0	0	—
10	0	0	—
20	0	0	—
30	0	0	—
40	0	0	—
50	2	1	50
60	0	0	—
70	0	0	—
80	0	0	—
90	0	0	—
100	0	0	—

Figure 4.3: Distribution and conditional acceptance use explicit observation counts.

4.2 Export and reproducibility

On the session's Data page, CSV downloads a wide file: one participant per row and rounds in columns. The lab's authenticated custom export supplies a long file. It has one row per participant and active round, so every group-round appears three times with a different role. Keep session code, configuration, language, edition, treatment, participant code, round, group, matching rule, conflict probability, M's action, recommendation, offer, response, implementation, random draws, detection, agreement, role accounts, and individual round ECU.

Do not treat blank cells as zeros. A missing recommendation is correct in the observer condition or after withdrawal. A missing implementation is correct after conflict or in a variant with no compliance stage. A missing verification draw means no violation needed detection. Reconstruct one record per group-round before calculating agreement or compliance rates; otherwise three participant rows will triple-count each outcome.

For a classroom graph, compute the offer–recommendation difference only when both exist. For private information, compare recommendations by the 30 and 70 percent states. For verification, define compliance as honor among accepted agreements. For guarantee, report the share offered, guarantee choice, acceptance, implementation, deposit loss, and role accounts. Always preserve the original export and document exclusions.

Attention

The private-information state and lottery draws are experimental random variables. They are not participant characteristics. Never merge participant codes with names for classroom display. A small convenience sample supports description and theory discussion, not population claims about diplomats, states, or international organizations.

4.3 Debriefing and analysis

4.3.1 A disciplined sequence

Begin with description. How many recommendations, offers, agreements, conflicts, and implementation decisions were observed? Next compare behavior with monetary benchmarks. Which offers fell inside the bargaining range? Did B reject any offer at or above the expected conflict account? Did A make offers that gave A less than expected conflict? Then examine the third party: how close were offers to recommendations, and did institutional incentives predict M's advice?

Move from benchmark to mechanisms. Students may invoke fairness, risk aversion, distrust, strategic uncertainty, or a desire to punish. Ask what additional treatment would distinguish each explanation. For example, observation without recommendation addresses mere third-party presence. A deterministic disagreement payoff would separate risk from strategic conflict. Anonymous fixed recommendations would separate the content of advice from beliefs about M's incentives.

Finally discuss external validity. Real mediators can communicate repeatedly, propose packages, control aid, threaten sanctions, or mobilize observers. Real disputes concern multidimensional and sometimes indivisible issues. The game compresses those features into explicit payoffs so a class can reason about one mechanism at a time. A useful conclusion identifies what the game clarifies and what it omits.

4.3.2 Questions for the reference and observer comparison

Ask whether M's recommendation selected a focal allocation or changed the perceived bargaining range. Did A move toward M's number? Did B punish deviations from the recommendation? Did agreement differ when M only observed? If both conditions produce similar outcomes, recommendation may have added little in this class. If the reference shows closer alignment but not higher agreement, M may have influenced distribution without preventing conflict.

Have students calculate each role's expected account under rejection and compare it with the observed accepted offers. Then ask why an offer inside the monetary bargaining range could still be rejected. Possible answers include risk seeking, negative reciprocity, distrust about instructions, a preference for equal outcomes, or simple error. The report cannot distinguish them by itself. This teaches the difference between an outcome and an explanation.

4.3.3 Questions for information and bias

In the private-information condition, ask whether recommendations differed across states. If not, did M pool information because 50 was safe in both bargaining ranges? If yes, did A and B respond as if they believed the signal? Compare an informative recommendation with a credible recommendation: information can be accurate but ignored, or persuasive despite limited information.

In the biased condition, ask the disadvantaged side what it inferred from M's incentive. Then ask the favored side whether advice to concede was more credible because M preferred that side. Link answers to Kydd's argument about biased credibility and Rauchhaus's emphasis on impartial information. The objective is not to vote for a single theory but to map observed behavior to assumptions.

4.3.4 Questions for compliance institutions

Distinguish agreement rate from compliance rate. Did verification change A's behavior even though detection was imperfect? Was monitoring socially worthwhile after its 5 ECU cost? Did M offer the guarantee? Did B accept more readily when a deposit was visible? Did any violation make M lose resources? Ask whether a guarantee can be credible when M can withdraw it after B accepts; in this game it cannot be withdrawn, which is why the choice occurs first.

Werner and Yuen warn that enforcement provisions cannot permanently rescue terms the parties no longer prefer. Use the offer to illustrate. A guarantee protects implementation of the accepted division, but an extremely unattractive division may never be accepted. Institutions operate on incentives created by substantive terms; they do not erase them.

Feedback script

"Agreement answers whether B accepted A's offer. Compliance answers whether A carried out the accepted division. Verification answers whether a violation was discovered. A guarantee answers who placed resources at risk and what happened after violation. Keep these four outcomes separate."

4.4 Treatment-by-treatment facilitation plans

4.4.1 Neutral recommendation

Use this as the first encounter. Before reveal, ask students to record a prediction for M's recommendation and A's offer. After reveal, calculate the bargaining range on the board and mark each recommendation and offer. The key learning objective is that a mediator can influence expectations without controlling the final decision. A strong session includes both agreement and rejection, because conflict makes the outside option visible.

Do not label 50 as the unique rational recommendation. Equal division is focal, but any share from 30 to 70 can satisfy both monetary participation constraints. If a class converges on 50, ask whether equality, simplicity, or strategic robustness selected it. If recommendations vary, ask what beliefs about rejection explain the dispersion.

4.4.2 Observation without recommendation

Run this after the reference with different trios or randomize whole groups between the two. Keep the agreement bonus identical. Ask M to remain silent outside the interface. The comparison teaches control design: changing group size, incentives, and communication simultaneously would prevent interpretation.

The primary outcomes are agreement, offer distribution, and B's acceptance conditional on offer. A secondary outcome is total earnings. The observation condition has no recommendation and therefore no deviation measure. This absence is structural, not missing data.

4.4.3 Biased incentive

Make the 10 ECU bonus salient without suggesting a strategy. Ask everyone to restate who benefits from a low B share. After play, display the recommendation and final offer separately. A biased recommendation below 50 followed by a more generous offer shows that A retained agency. A low accepted offer shows alignment among advice, proposal, and response but does not identify why B accepted.

Consider eliciting pre-play beliefs on paper: what share will M recommend, what will A offer, and what will B accept? Beliefs should not affect payments unless a separate elicitation protocol is announced. Comparing beliefs with choices can reveal whether common knowledge of bias altered expectations before any advice was observed.

4.4.4 Private information

Use at least two groups and preferably six rounds so both states recur. M must not reveal the state verbally. After reveal, sort recommendations by state and offers by recommendation. A simple two-column board is enough. Ask whether M separated or pooled states, then whether A and B behaved as if they updated.

Each group-round receives an independent fair draw between the two states; this draw is not a forecast of real conflict. Avoid describing 70 percent as certainty. A strong A can still lose, and a weak A can still win. Expected outside options shift, while realized conflict remains stochastic.

4.4.5 Verification

Before play, compute the expected incremental return from violation without telling students which action to choose. Some classes may prefer to derive it afterward to avoid demand effects. After

reveal, show honor, detected violation, and undetected violation separately. A high compliance rate with few detections may indicate deterrence, but it cannot show what would have happened without verification unless a comparison condition is run.

Discuss the monitoring cost even when no one violates. Prevented behavior is unobserved, while the cost is visible. This creates a realistic evaluation problem: an institution may look wasteful precisely because it succeeded in deterrence. A proper experiment would randomize verification and compare otherwise identical groups.

4.4.6 Own-resource guarantee

Focus first on M's choice, then B's response, then A's implementation. The temporal order matters. M commits before knowing whether B accepts; B sees commitment; A knows the consequence before implementation. Ask why a guarantee announced after violation would not influence earlier behavior.

Separate compensation from punishment. M's 20 ECU deposit replaces what B loses through diversion. A's 30 ECU penalty makes violation less attractive. Removing either component produces a different institution. The design uses both because a guarantee needs resources for protection and a consequence that changes the violator's incentives.

4.4.7 Voluntary withdrawal

Use repeated rounds if the class will discuss mediator selection. Ask M to decide without public justification. After reveal, compare entry with expected agreement, but emphasize selection bias. A mediator may enter easy cases and withdraw from hard ones, causing observed mediated disputes to look successful even with no causal effect.

An extension for an advanced course can randomize the option to withdraw or vary the agreement bonus. Such changes should be preregistered if used for research. For teaching, they can be discussed as proposed designs without changing the production game.

Exercises and assessment

5.1 Instructor checklist

Checkpoint

1. Confirm the family host, language, room, configuration, and participant multiple.
2. Decide whether outcomes are hypothetical or paid and announce the conversion rule if paid.
3. Test one participant link and the hidden instructor report.
4. Explain that M recommends but does not own the 100 ECU resource.
5. Keep the private-information state and aggregates off the projector during decisions.
6. Wait for all relevant groups before revealing results.
7. Debrief recommendation, offer, acceptance, implementation, and enforcement as separate outcomes.
8. Save the original anonymous export and an incident log.
9. State the limits of a classroom sample and avoid identifying individual choices.

5.2 Calculation exercises

1. Derive the bargaining range when A wins conflict with probability 0.7. A's expected conflict account is 80 and B's is 40. An agreement gives A $130 - s$ and B $30 + s$, so s must be at least 10 and at most 50. Repeat for probability 0.3 and obtain 50 through 90.
2. Under verification, calculate the expected account from violation at an equal offer. Detection yields 70 and no detection yields 100. The expectation is $0.75(70) + 0.25(100) = 77.5$, below the 80 from honor. Explain why an undetected violator can still earn 100.
3. Under a guarantee, compare A's accounts after honor, unbacked violation, and backed violation: 80, 100, and 70. Compare B's: 80, 60, and 80. Compare M's: 60, 60, and 40. Identify the transfer, compensation, and penalty separately.
4. Suppose M withdraws and B accepts 50. A and B receive 80 each, while M receives 40 because no agreement bonus is available after withdrawal. If M participates and the same agreement occurs, M receives 60. Explain how this changes the supply of mediation.

5.3 Short analytical prompts

Ask students to write 250 words on one question: Can bias increase credibility? Does a high agreement rate prove mediator effectiveness? How does verification differ from a guarantee? Why can selection into mediation bias an observational comparison? Each answer should state a mechanism, identify an observable implication in the game, and name one limitation of the inference.

For a data assignment, provide an anonymous export and require students to build one group-round file. They should report agreement, mean offers, recommendation deviations, role accounts, and one treatment-specific measure. Grading should reward correct denominators and treatment-aware missing values. A student should not calculate a guarantee rate in the reference condition or code the absent guarantee decision as zero.

5.4 Research design extension

Advanced students can propose one change while preserving interpretability. A useful proposal specifies the treatment, control, timing, information, payoffs, primary outcome, and predicted direction. Examples include varying mediator selection, making verification endogenous, changing the deposit, or allowing B to request mediation. Require students to explain which existing mechanism the new treatment isolates and which comparisons become invalid.

Discourage a design that adds chat, repeated offers, private types, endogenous entry, sanctions, and reputation simultaneously. Such a game may be realistic but cannot teach a clear causal mechanism in one class. Complexity should be earned by a precise question.

5.5 Adaptation, ethics, and troubleshooting

5.5.1 Large and small classes

With six participants, the report contains two trios. One can agree and one can experience conflict under the bot path, but human outcomes may coincide. With thirty participants, ten trios permit a more informative distribution. Keep discussion at the group level and avoid identifying unusual choices. In very large rooms, appoint a teaching assistant to monitor completion without seeing individual names.

For fewer than six participants, use one fixed trio and assign other students to predict choices on paper. Do not create a rematched session with one trio. For counts not divisible by three, observers can calculate expected payoffs or record hypotheses, but they should not share predictions with active participants until decisions close.

5.5.2 Connectivity and recovery

If a participant closes the browser, reopen the same participant link rather than creating a second entrant. If a group waits, use the administrative progress view to identify the stage without revealing the missing choice. Do not press back after a submitted decision. If the server restarts, preserve the family database and use the existing session when possible.

Record incidents: late entry, verbal communication, duplicated link, instructor assistance, or connection loss. A classroom debrief can proceed with affected observations labeled. A research

dataset needs a predeclared exclusion rule. Never silently edit outcomes to make a session appear complete.

5.5.3 Ethical use

Participation should follow institutional rules and course policies. Explain whether the activity affects grades or payments. Avoid coercive public comparison and do not frame conflict as a moral failure. The roles are abstract and rotate only across separate sessions; they do not represent students' nationalities or political identities.

The result page provides individual feedback, while the report is aggregate and anonymous. If using data beyond teaching, obtain the necessary ethics review or exemption, consent, and data management plan. The software is an instructional instrument and does not itself supply research authorization.

5.6 Literature and conceptual map

5.6.1 Laboratory evidence and teaching adaptation

Johnson and Tullar (1972) experimentally distinguished nonbinding mediation from binding arbitration and found that mediation did not automatically increase agreement. Ross (1990) manipulated mediator techniques and found different consequences across techniques. These studies motivate separating institutions and measuring agreement as an outcome. This game is an original teaching adaptation; its bonuses, verification technology and deposit are not a replication of either experiment.

Fearon's rationalist framework identifies private information, commitment problems, and issue indivisibility as mechanisms that can produce costly conflict despite a bargaining range. This game emphasizes information and commitment while keeping the issue divisible. Kydd studies how mediator bias can support credible communication under particular preference alignments. Rauchhaus links mediator effectiveness to information about reservation points and finds advantages for impartial mediation in his model and evidence.

Fey and Ramsay provide an important limit: a mediator with no independent information source may not improve on unmediated communication when disputants can misrepresent what they know. The private-information treatment supplies M with an exogenous signal precisely so the class can observe a meaningful information channel. Walter analyzes the vulnerability created during implementation and specifies why third-party guarantees need interest and capacity. Fortna documents how monitoring, guarantees, peacekeeping, and other agreement provisions relate to the durability of postwar peace. Werner and Yuen caution that enforcement devices cannot compensate for settlement terms that parties cease to prefer.

Together these works support a sequence of questions. Is there a feasible settlement? Who knows the relevant outside options? Can a message be believed? Who proposes the definitive terms? What makes acceptance attractive? Can the accepted terms be observed and implemented? What resources back a promise? Why does the third party enter? The game assigns each question to an observable stage rather than merging them into a single index of "successful mediation."

Theoretical foundation

No treatment reproduces diplomatic practice in full. The value of the exercise is analytical separation. Recommendation addresses coordination and communication; private informa-

tion addresses transmission; bias changes credibility; verification produces information about implementation; a guarantee changes material incentives; withdrawal introduces selection into intervention.

5.7 Worked classroom cases

5.7.1 Case 1: recommendation followed, agreement reached

Suppose M recommends 50, A offers 50, and B accepts. A and B each receive 80 and M receives 60 in the reference condition. The observation is consistent with coordination on equality, but it does not prove that M caused the offer. A might have chosen 50 without advice. To evaluate the recommendation channel, compare with the observation treatment or randomize groups between the two conditions. Ask students which counterfactual is needed and why a before–after comparison within one group would be contaminated by learning.

If the same pathway occurs in the biased condition, M receives 70. The allocation remains equal, yet M's incentive is not neutral because the threshold includes 50. Students should distinguish an equal outcome from an impartial decision maker. A mediator can have a preference and still recommend an equal split. Conversely, a neutral payoff does not guarantee that recommendations will be equal.

5.7.2 Case 2: recommendation ignored, agreement reached

Suppose M recommends 40, A offers 60, and B accepts. The signed deviation is $60 - 40 = 20$ ECU and the absolute deviation is 20. A receives 70, B receives 90, and M receives 60 in the reference condition. Mediation may have mattered even though A ignored the number: M could have signaled that B was demanding, or the presence of advice could have focused attention on agreement. The data alone do not identify this indirect channel.

Ask whether B's acceptance validates M's recommendation. It does not. B accepted a more generous offer. Then ask whether A made an avoidable concession relative to conflict. A receives 70, which is above the expected conflict account of 60. The offer remains inside the reference bargaining range. A did not maximize the current monetary account, but the choice can be rational under beliefs about B's rejection threshold.

5.7.3 Case 3: offer inside the range rejected

Suppose M recommends 50, A offers 40, and B rejects. The offer would have paid A 90 and B 70, both at least 60. Conflict instead produces 110 and 10 in some order, with expected accounts of 60 each. Monetary expected-payoff reasoning predicts acceptance by B, but a realized rejection can reflect negative reciprocity, a desire to enforce equality, risk preference, confusion, or a belief that classroom payoffs have another meaning. The result is an invitation to propose discriminating treatments, not permission to label the participant irrational.

The mediator receives 40 after conflict. The lost 20 ECU bonus gives M a reason to recommend something B will accept. Calculate total realized ECU: agreement always gives A plus B 160 and M normally 60, for 220. Conflict gives A plus B 120 and M 40, for 160. Conflict destroys 60 total ECU relative to agreement: 40 through dispute costs and 20 through M's foregone bonus. This total comparison is useful, but welfare claims still depend on whether experimental ECU capture everything participants value.

5.7.4 Case 4: informative advice under asymmetric strength

Suppose M privately observes that A wins with probability 0.7 and recommends 30 to B. A offers 30 and B accepts. Expected conflict accounts were 80 for A and 40 for B. Agreement pays A 100 and B 60, so both gain 20 relative to expectations. The recommendation is consistent with the state and selects an interior point of the 10–50 bargaining range.

Now consider the same recommendation when A is weak. B's expected conflict account is 80, while an accepted share of 30 pays B 60. A risk-neutral B should reject. If M sends 30 in both states, the message pools and may lose credibility. Have students tabulate state, recommendation, offer, and response. This makes "information transmission" an empirical relationship among variables rather than a vague description of M's role.

5.7.5 Case 5: verification deters or fails

At an equal accepted offer, honor pays A 80. Diversion followed by detection pays 70; diversion without detection pays 100. With 75 percent detection, the expected diversion account is 77.5. If A honors, the class observes compliance but cannot know whether verification caused it. If A diverts and is detected, the class observes enforcement. If A diverts and escapes detection, the institution failed in that realization even though its ex ante incentive still favored honor.

M receives 55 whenever an accepted agreement is verified. The 5 ECU cost is paid after honor as well as violation. Compare expected group totals under honor and violation to show the resource cost of information. Then ask whether a cheaper but less accurate technology might dominate. That question leads naturally to a two-dimensional treatment design varying detection probability and monitoring cost.

5.7.6 Case 6: a guarantee at risk

Suppose M deposits 20, B accepts 50, and A honors. All three receive 80, 80, and 60; the deposit returns. The guarantee has no realized cost, but it could have changed B's willingness to accept and A's implementation. Suppose instead A violates. A gets 70, B remains at 80 after compensation, and M falls to 40. The loss falls on A and M rather than B.

This case reveals why a guarantor needs incentives. M may hesitate to guarantee a party expected to violate. If M selectively guarantees trustworthy cases, agreements with guarantees will look more compliant even before the guarantee changes behavior. A randomized guarantee opportunity or an exogenous guarantee is needed to separate selection from deterrence.

5.8 Glossary and interpretation rules

Agreement: B accepts. **Compliance:** A honors an accepted division. **Conflict:** B rejects and the lottery allocates the resource. **Recommendation:** M's nonbinding proposal for B. **Deviation:** A's offer minus M's recommendation. **Verification:** costly probabilistic detection and remedy of diversion. **Guarantee:** M's public deposit and the programmed violation consequence. **Withdrawal:** M declines the advisory role. **Selection:** mediation or guarantees depend on M's decision.

Keep agreement separate from implementation. Undetected diversion is violation, not compliance. Missing recommendations are not zero. Require controls for causal claims; account for institutional costs when comparing payoffs. Map analogies to timing, information and enforcement.

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