

THE NON-ZERO- SUM FIELD GUIDE

Eight strategic dilemmas. Six ways to redesign cooperation. A practical worksheet for human situations that do not fit neatly into a score.

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FIELD NOTE 01

First, read the game

These pages are for understanding incentives, not classifying people as good, bad, smart or irrational.

A FOUR-STEP READING SEQUENCE

1. Name the players and available actions. What can each person actually choose? Who is affected but absent? **2. Write the payoffs.** Consider material benefits, status, time, dignity, risk and unequal exposure. **3. Look for individually attractive moves.** Is an option good regardless of the other action, or does it depend on expectations? **4. Ask how rules change the game.** Agreements, transparency, enforcement and exit options matter.

THREE DIFFERENT QUESTIONS

Can we make more value in total? That is an efficiency question. **Who receives it?** That is a distribution question. **Is the arrangement voluntary and legitimate?** That is a consent and fairness question. A high total score cannot answer all three.

A MINIMAL VOCABULARY

Zero-sum: one player's gain is exactly another's loss within the model. **Non-zero-sum:** total payoff can differ across outcomes, so interests may partly align or conflict. **Nash equilibrium:** an action profile in which no player can improve by switching unilaterally, given the other action. **Dominant action:** best regardless of the other player's move. **Outside option:** what someone can receive by not entering or continuing an arrangement.

WHAT A PAYOFF NUMBER DOES NOT CAPTURE

Toy matrices hide social history, information asymmetry, varied priorities, missing stakeholders, changing payoffs, emotions, law, risk, unequal bargaining power and long-run effects. Treat the numbers as lenses for thinking, never empirical measurement.

FIELD NOTE 02

A dilemma, fully unpacked

A compact worked example using the famous prisoner's dilemma, with invented utility points.
YOUR MOVE ↓ / THEIR MOVE →

	Silent	Testify
Silent	+3 / +3	+0 / +5
Testify	+5 / +0	+1 / +1

Payoffs = (you, them); utility points are invented.

READ ACROSS YOUR TWO POSSIBILITIES

If the other person stays silent, testifying gives you 5 rather than 3. If they testify, testifying gives you 1 rather than 0. So testifying is your **strictly dominant action**. The same logic applies to the other person.

WHY THE GAME IS A DILEMMA

When both testify, each gets 1. If both could credibly stay silent, each would get 3. The point is not that people are foolish: choices can be individually coherent under a set of rules yet jointly disappointing.

A RULE-CHANGE EXPERIMENT

Suppose a hypothetical binding institution imposes a 2-point cost on each testimony: (Silent, Silent) stays (3,3); (Testify, Silent) becomes (3,0); (Silent, Testify) becomes (0,3); and (Testify, Testify) becomes (-1,-1). One invented rule changes incentives. It does not prove that real sanctions are fair or effective.

CHECK YOURSELF

If the other player always testifies, can empathy alone change your best immediate move? What credible future or enforceable agreement would make cooperation less risky? Which costs could a rule introduce for the people who enforce it?

FIELD NOTE 03

Four traps that look alike

Before recommending “more trust,” ask what kind of strategic problem you actually face.

1 / SOCIAL DILEMMA

A tempting individual move undermines a shared outcome. Example: public-good free riding. A useful intervention may change incentives or make contribution verifiable.

2 / ASSURANCE PROBLEM

People want to coordinate, but a safer fallback prevents commitment. Example: stag hunt. Evidence of the other person’s readiness can matter more than moral appeals.

3 / ANTI-COORDINATION

Both players taking the assertive move is disastrous, while opposite actions can work. Example: chicken. Clear priority rules and face-saving exits may avoid escalation.

4 / DISTRIBUTIONAL CONFLICT

Both people benefit from collaborating but disagree about how the gain is divided. Example: favourite evening. Rotation, representation and fair bargaining may be essential.

A PRACTICAL DIAGNOSTIC

Ask: **Do we disagree about creating value, distributing value, coordinating expectations or protecting against exploitation?** A situation can involve more than one at once. If people are not free to leave, “cooperation” can hide coercion.

FIELD NOTE 04

Prisoner's dilemma

SOCIAL DILEMMA • One of eight playable worlds in the Non-Zero-Sum Lab
YOUR MOVE ↓ / THEIR MOVE →

	Silent	Testify
Silent	+3 / +3	+0 / +5
Testify	+5 / +0	+1 / +1

Payoffs = (you, them); utility points are invented.

THE STRUCTURAL LESSON

The temptation to defect exists regardless of what the other party chooses. Mutual defection is stable under this one-shot matrix but jointly worse than mutual restraint.

WHERE YOU MIGHT NOTICE IT

A workplace where two colleagues can claim all the credit for a shared effort; a supplier relationship with incentives to cut quality once trust is extended.

ONE DESIGN LEVER TO TEST

Change the payoff structure: credible quality checks, repeat dealing, transparent credit allocation or reliable mediation. The mechanism matters more than a motivational slogan.

IMPORTANT LIMITATION

Confession and criminal legal processes are richer than this abstraction. Retaliation can also cause harm, and long-run repetition can support many different outcomes.

TRY THIS ON PAPER

Compare the payoffs after reducing the advantage from unilateral testimony. How much would that temptation need to change before staying silent is a best response?

A FAIRNESS QUESTION

Does the proposed rule protect vulnerable parties, or does it merely make it costly to report misconduct?

FIELD NOTE 05

Stag hunt

ASSURANCE / COORDINATION • One of eight playable worlds in the Non-Zero-Sum Lab
YOUR MOVE ↓ / THEIR MOVE →

	Stag	Hare
Stag	+5 / +5	+0 / +3
Hare	+3 / +0	+3 / +3

Payoffs = (you, them); utility points are invented.

THE STRUCTURAL LESSON

The cooperative outcome is attractive if both participate. But each player has a safe fallback. Both going for hare can be self-consistent even though both prefer the joint stag payoff.

WHERE YOU MIGHT NOTICE IT

Two designers contemplating a joint exhibition; neighbours deciding whether to invest time in a community clean-up when turnout is uncertain.

ONE DESIGN LEVER TO TEST

Improve assurance: low-stakes deposits, verifiable commitments, small pilot tasks or a clear threshold before everyone must make a costly move.

IMPORTANT LIMITATION

The value of an individual fallback varies. Some participants cannot afford failure, so asking them to “trust” can misread unequal risk.

TRY THIS ON PAPER

Suppose the abandoned-stag payoff rises from 0 to 2 because a backup collaborator is available. How might expectations about coordination change?

A FAIRNESS QUESTION

Do both parties have an equally safe fallback, or is one being asked to accept a disproportionate risk?

FIELD NOTE 06

Common pasture

COMMON-POOL RESOURCE · One of eight playable worlds in the Non-Zero-Sum Lab
YOUR MOVE ↓ / THEIR MOVE →

	Restrain	Overuse
Restrain	+4 / +4	+1 / +6
Overuse	+6 / +1	+2 / +2

Payoffs = (you, them); utility points are invented.

THE STRUCTURAL LESSON

Using more pasture benefits the individual in the short term while putting pressure on a shared resource. Without workable rules, restraint can feel unrewarding.

WHERE YOU MIGHT NOTICE IT

Shared groundwater, fishing grounds, office equipment, bandwidth in a small volunteer group or even a common kitchen.

ONE DESIGN LEVER TO TEST

Draw on institutional design: clarify boundaries, invite rule-making participation, monitor usage affordably, settle disputes locally and make sanctions proportional.

IMPORTANT LIMITATION

Elinor Ostrom documented real communities that govern commons successfully. A “tragedy” is not automatic, and this two-person toy omits complex ecology.

TRY THIS ON PAPER

List which users depend on the resource but do not appear in the matrix. What happens if an outside user also overdraws from the system?

A FAIRNESS QUESTION

Who writes the usage rules, and can weaker members contest them without fear?

FIELD NOTE 07

Chicken / hawk–dove

ANTI-COORDINATION • One of eight playable worlds in the Non-Zero-Sum Lab
YOUR MOVE ↓ / THEIR MOVE →

	Yield	Hold
Yield	+3 / +3	+1 / +5
Hold	+5 / +1	-5 / -5

Payoffs = (you, them); utility points are invented.

THE STRUCTURAL LESSON

Holding firm wins a bigger prize against someone who yields, but mutual escalation is extremely costly. The strategic challenge is to prevent a destructive clash.

WHERE YOU MIGHT NOTICE IT

Two teams escalating an internal dispute; a rushed meeting where neither side wants to concede scheduling priority.

ONE DESIGN LEVER TO TEST

Use pre-agreed priority rules, rotation, neutral facilitation and visible face-saving exits rather than encouraging real-world brinkmanship.

IMPORTANT LIMITATION

The car-collision story is illustrative only. Never treat physical danger or coercion as a game to test against other people.

TRY THIS ON PAPER

Replace the mutual-hold payoff from -5 with 0. Is the escalation risk still the same? Which intervention keeps people from reaching it?

A FAIRNESS QUESTION

Can a person yield without losing dignity or access to future opportunities?

FIELD NOTE 08

Favourite evenings

COORDINATION / DISTRIBUTION · One of eight playable worlds in the Non-Zero-Sum Lab
YOUR MOVE ↓ / THEIR MOVE →

	Concert	Boxing
Concert	+4 / +2	+0 / +0
Boxing	+0 / +0	+2 / +4

Payoffs = (you, them); utility points are invented.

THE STRUCTURAL LESSON

Both friends value spending time together. One prefers the concert, the other prefers boxing. Both matching cells are positive, but each benefits one party more.

WHERE YOU MIGHT NOTICE IT

How a team chooses the location for a monthly gathering; two collaborators deciding whose preferred creative direction to try first.

ONE DESIGN LEVER TO TEST

Fair rotation, joint criteria or equal-probability randomisation may settle conflict without pretending everyone has the same preference.

IMPORTANT LIMITATION

“Win-win” can conceal inequitable distribution. A commitment to staying together should not become pressure to erase either person’s interests.

TRY THIS ON PAPER

Imagine a new activity valued at (3,3). Would a compromise be preferable to rotating between (4,2) and (2,4)? Consider predictability.

A FAIRNESS QUESTION

Would a third option, or the option to spend time apart, be fully legitimate?

FIELD NOTE 09

Public-good fund

FREE-RIDER PROBLEM • One of eight playable worlds in the Non-Zero-Sum Lab
YOUR MOVE ↓ / THEIR MOVE →

	Contribute	Skip
Contribute	+4 / +4	+1 / +6
Skip	+6 / +1	+2 / +2

Payoffs = (you, them); utility points are invented.

THE STRUCTURAL LESSON

A shared benefit is created when enough people contribute, but beneficiaries may still receive value without contributing. This can discourage funding.

WHERE YOU MIGHT NOTICE IT

A community newsletter, upkeep of an open-source tool, or upkeep of a building's common areas.

ONE DESIGN LEVER TO TEST

Transparent budgets, proportionate subscriptions, contribution matching, selective benefits where justified, or a public institution that funds the good.

IMPORTANT LIMITATION

The example has only two people; actual goods can involve many users, thresholds, different incomes and different levels of benefit.

TRY THIS ON PAPER

What if one neighbour has half the income of another? Does “equal contribution” still mean “fair contribution”?

A FAIRNESS QUESTION

Could a contribution requirement exclude exactly the group the project was meant to help?

FIELD NOTE 10

Climate coordination

GLOBAL PUBLIC GOOD • One of eight playable worlds in the Non-Zero-Sum Lab
YOUR MOVE ↓ / THEIR MOVE →

	Reduce	Delay
Reduce	+5 / +5	+1 / +7
Delay	+7 / +1	+2 / +2

Payoffs = (you, them); utility points are invented.

THE STRUCTURAL LESSON

Shared gains from emissions reduction can coexist with unequal transition costs and incentives to wait for others. Cooperation is as much about distribution as aspiration.

WHERE YOU MIGHT NOTICE IT

Transnational environmental agreements, shared technology standards and financing industrial transitions.

ONE DESIGN LEVER TO TEST

Support transition finance, credible reporting, technology access and arrangements that reflect differences in capacity and responsibility.

IMPORTANT LIMITATION

Two fictional actors and eight numerical payoffs cannot model emissions, physical climate effects, policy welfare or future generations.

TRY THIS ON PAPER

Add a future-generation stakeholder. Which of the existing payoffs need to be reinterpreted when delayed harms become visible?

A FAIRNESS QUESTION

Whose welfare is excluded when only current governments are allowed a payoff?

FIELD NOTE 11

Trust exchange

RECIPROCITY / VULNERABILITY · One of eight playable worlds in the Non-Zero-Sum Lab
YOUR MOVE ↓ / THEIR MOVE →

	Share	Withhold
Share	+6 / +6	+0 / +8
Withhold	+8 / +0	+2 / +2

Payoffs = (you, them); utility points are invented.

THE STRUCTURAL LESSON

When two collaborators share ideas or credit, the joint benefit can grow. However, a unilateral contribution is vulnerable to exploitation.

WHERE YOU MIGHT NOTICE IT

Two independent creators deciding whether to exchange drafts, split responsibilities or share a customer introduction.

ONE DESIGN LEVER TO TEST

Begin with small reciprocal trials, define ownership and credit, use appropriate confidentiality boundaries and preserve a low-cost right to stop.

IMPORTANT LIMITATION

This is a simultaneous two-player mutual-sharing illustration, not the standard sequential trust-game design used in experiments.

TRY THIS ON PAPER

Design a three-stage exchange where each party can learn from the previous stage without giving away irreplaceable assets.

A FAIRNESS QUESTION

Is “trust” being demanded as proof of loyalty when a reasonable boundary would be safer?

FIELD NOTE 12

Six levers, six caveats

A change to the institution can matter more than a change to someone's attitude.

01 REPEAT

Why it may help: Encourage future encounters when repeated opportunities create an incentive for reciprocity.

Failure mode: Repeated interaction can also trap participants or enable retaliation.

02 SIGNAL

Why it may help: Use specific, verifiable commitments instead of vague reassurance.

Failure mode: Signals can be cheap talk, hard to verify, or inaccessible to some groups.

03 SHARE INFORMATION

Why it may help: Make constraints, costs and roles easier to understand.

Failure mode: Total transparency may violate privacy or strengthen the powerful.

04 SET FAIR RULES

Why it may help: Negotiate contribution rules and proportional remedies before conflict.

Failure mode: Rules can be captured, unevenly enforced or expensive to administer.

05 PROVIDE EXIT

Why it may help: Give participants a dignified right to pause, reject or leave.

Failure mode: An "exit" is not genuine when the person would lose basic security.

06 CREATE JOINT VALUE

Why it may help: Search for complementary strengths, tradeable preferences and third options.

Failure mode: Higher total value can still be distributed unjustly.

FIELD NOTE 13

A project meeting that keeps failing

This is an invented case study. The purpose is to diagnose a conflict before blaming character.

THE SCENE

Two volunteers are preparing an exhibition. Each can either **share a draft early** or **keep work private until the deadline**. Early sharing is risky if the other person does not reciprocate; waiting makes coordination harder.

YOUR MOVE ↓ / THEIR MOVE →

	Share	Wait
Share	+3 / +3	+0 / +4
Wait	+4 / +0	+1 / +1

Payoffs = (you, them); utility points are invented.

DIAGNOSIS

The game rewards unilateral withholding (4 rather than 3 when the counterpart shares; 1 rather than 0 when they wait). Both may delay even while wishing the project could be collaborative. Calling either person “unreliable” describes neither the payoff structure nor the fear of losing credit.

THREE REDESIGN EXPERIMENTS

A. Split credit explicitly: agreed authorship reduces the value of withholding. **B. Use a 20-minute pilot review:** each shares one small, non-sensitive component before sharing full drafts. **C. Specify a fair exit:** each can stop the collaboration while keeping their original contributions. These are hypotheses to test, not guaranteed solutions.

THE CHECK THAT MATTERS

After a rule changes behaviour, ask whether credit, consent and risk are now distributed more fairly. If the “solution” increases total points by forcing the quieter person to share everything first, the group may simply have hidden its inequality.

DISCUSS

What evidence would make you revise your model? What would the counterpart say is missing from this story? Could the ideal outcome be a respectful decision not to collaborate?

FIELD NOTE 14

Your own cooperation map

A one-page worksheet. Fill it in with an actual team, friendship, institution or small decision. No personal data is collected by this PDF.

1. THE ACTUAL DECISION

What are we deciding? Which people or groups are affected but absent?

2. THE AVAILABLE MOVES

List two realistic choices for each party, including a right to decline.

3. BENEFITS AND HIDDEN COSTS

Who gains, who carries uncertainty, who pays later, and what cannot be scored?

4. WHICH STRUCTURAL TRAP?

Social dilemma / assurance / anti-coordination / distribution / something else?

5. A SMALLER, FAIRER EXPERIMENT

What reversible rule change, pilot or explicit agreement would we try?

6. WHAT EVIDENCE CHANGES OUR MIND?

Name a result that would lead us to stop, revise or renegotiate.

FIELD NOTE 15

Go beyond the toy world

Conceptual references, definitions and a final reminder about model humility.

Stanford Encyclopedia of Philosophy, Game Theory

<https://plato.stanford.edu/entries/game-theory/>

Strategic-form games, equilibrium, rationality and repeated play.

Stanford Encyclopedia of Philosophy, Prisoner's Dilemma

<https://plato.stanford.edu/entries/prisoner-dilemma/>

Distinctions between one-shot and iterated dilemmas and their limits.

Robert Axelrod, The Evolution of Cooperation (1984)

<https://public.websites.umich.edu/~axe/CC/ECHome/ECCitationClassic.html>

Reciprocity, tit-for-tat, and why future encounters can matter.

Royal Swedish Academy of Sciences, 2009 Prize press release

<https://www.nobelprize.org/prizes/economic-sciences/2009/press-release/>

Elinor Ostrom and Oliver Williamson; economic governance and commons.

The Prize in Economic Sciences 1994

<https://www.nobelprize.org/prizes/economic-sciences/1994/summary/>

John Nash, John Harsanyi and Reinhard Selten; equilibrium analysis.

A FINAL COMMITMENT

The eight game matrices, payoffs, examples and intervention effects in this field guide are **invented for education**. They are not empirical data, predictive tools or a substitute for listening to the parties involved. Better cooperation can include a fair refusal, a safe boundary or a respectful parting.

KEEP THE INQUIRY GOING

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