

The Fractal Map by Hand

How problems and solutions connect. A sheet for tracing what one solution sets in motion in the domains beside it, what one problem drags down with it, and what new problem a good solution leaves behind.

Dialectic and Deconstruction Solutions (DDS) is a sequence of questions, and a person with a pen can run every one of them. The engine at SolveSomething.com automates the questions. It does not own them. This sheet is the Fractal Map on paper, complete.

The Fractal Map is the part of a DDS blueprint that reads a solution as one component in a wider system. A blueprint is a worked solution to one driver of a larger problem, and DDS calls that larger problem the umbrella problem. No blueprint solves the umbrella. Each one moves a piece of it, and the move reaches into budgets, households, and institutions that the original decision never looked at. Most of a solution's value and most of its cost live in those second and third effects, which is why the cheapest cut is rarely the cheapest and the smallest fix is rarely small.

SOLUTION TO SOLUTIONS

One solution traced step by step into other domains: economy, education, health, housing, environment, safety, relationships and family, democracy and government. Solutions create solutions.

PROBLEM TO PROBLEMS

One problem traced downhill through the domains it lands in, with the ledger that pays for each step. Problems create problems, and the bill arrives on budget lines nobody counted.

SOLUTION TO THE NEXT PROBLEM

Every solution casts a new shadow. The map names the shadow, and the shadow becomes the next component, with its own blueprint. A real solution moves the problem forward.

Confidence tiers, not numbers

Every link on the map gets one of three tiers: **high** (the mechanism is known and the actors are already in place), **medium** (the mechanism is sound and at least one link depends on a choice someone has not yet made), or **low** (the chain holds only while an earlier link holds, or the mechanism is plausible and unproven here). We never write a percentage. A number on a guessed chain looks like knowledge and is not.

The rule of narration: an arrow with no mechanism written on it is a guess, and this sheet does not accept guesses. Every arrow carries a sentence that says who does what differently, and why, because of the link before it.

How to use the sheet

Pages two through ten build one map in order: learn to write a mechanism, trace a solution outward, trace a problem downhill, name the shadow, draw the two loops, run the audit, and record component status. Each page stands alone and can be handed around a table on its own. A few words per line is the expectation on every fill-in line. The worked examples come from blueprints published at SolveSomething.com and show the depth we are after, not the answer.

THE SOLUTION WE ARE MAPPING

In one sentence, the solution this sheet will trace. If we have a finished blueprint, this is its mechanism. If we have only an idea, we write the idea and keep going.

The umbrella problem this solution is one component of:

The chain tool: how to write a mechanism

Before we trace anything, we learn the one skill the whole map rests on.

A mechanism is the sentence that says how one node leads to the next. It names a person or institution, the thing they now do differently, and the reason the previous link made them do it. Without that sentence we have a hope with an arrow drawn on it.

A BAD CHAIN

Sustainable farming improves education.

Two nouns and a verb. Nobody acts. Nothing is checkable. A reader who disagrees has nothing to point at.

THE SAME CHAIN, NARRATED

Farms sell on contract, so farm income is stable across the year. Stable income means families do not move to the city for steady work. Families staying means school enrollment holds. Per-pupil funding follows the headcount, so the district keeps its teachers.

Four links. Each names who does what differently and why. Each can be wrong on its own, which is what makes the chain worth reading.

The link test

We run this on every link we write. A link passes when all four boxes are checked. A link that fails is rewritten until it passes, or the chain stops there and we say so.

- ☐ **Who.** The link names a person, household, office, or business, not a domain. "Health" does nothing. "The clinic" does.
- ☐ **What differently.** The link names a behavior that changes: hires, stops driving, skips a copay, keeps a teacher.
- ☐ **Why, because of the previous link.** The reason sits in the link before it, not in a general truth about the world.
- ☐ **Checkable.** Someone could look and see whether it happened: a headcount, a docket, a store's hours, a crash log.

WORKED EXAMPLE: ONE LINK, TESTED

THE LINK	Families staying in the county keeps school enrollment steady, and per-pupil funding follows the headcount, so the district keeps its teachers.
WHO	The school district.
WHAT DIFFERENTLY	It does not lay off teachers at the next budget.
WHY	Because the per-pupil money it receives tracks the headcount, and the headcount held because families stayed (the previous link).
CHECKABLE	October enrollment count and the teaching roster, year over year.
TIER	High. The funding formula already exists and the district already acts on it.

PRACTICE: NARRATE ONE LINK OF OUR OWN

Take any two things we believe are connected in the solution from page one. Write the narrated version (who, what differently, why, because of what came before), then run the four boxes above on it.

Solution to solutions: the worked example

One county-scale solution, traced step by step into four other domains. We read this page before filling the next.

A solution placed at the center of the map sends chains outward into the domains beside it. Each chain is three or four nodes long. Each node carries a "how" line, and each chain carries one confidence tier. The example below comes from the published blueprint on integrating wild protein into local food systems and the community farms theme. The solution at the center: farms sell on contract to the school district, the hospital and the grocery, elk and deer enter the local food system through licensed processors, and greenhouses and a processing shed carry work through the winter.

EDUCATION: HIGH CONFIDENCE	
STABLE FARM INCOME	how: contracts pay all year, not one harvest gamble
FAMILIES STAY IN THE COUNTY	how: no move to the city for steady work
ENROLLMENT HOLDS	how: per-pupil funding follows the headcount
THE DISTRICT KEEPS ITS TEACHERS	how: no layoffs when the budget holds

HEALTH: MEDIUM CONFIDENCE	
LOCAL FOOD CONTRACTS	how: the district buys from county farms first
SCHOOL MEALS SOURCED LOCALLY	how: fresh produce replaces shipped-in stock
FEWER PROCESSED MEALS	how: less sugar and sodium on the tray
A MEASURABLE HEALTH EFFECT	how: tracked in school nurse records over three years

HOUSING: MEDIUM CONFIDENCE	
YEAR-ROUND FARM WORK	how: greenhouses and processing fill the winter months
FEWER SEASONAL LAYOFFS	how: paychecks do not stop in November
STEADIER RENT PAYMENTS	how: landlords see fewer missed months
FEWER EVICTIONS	how: the county court docket shortens

ENVIRONMENT: LOW CONFIDENCE	
OPEN LAND KEPT IN PRODUCTION	how: a working farm pays its own taxes
NO SUBDIVISION	how: no sale to a developer at retirement
WILDLIFE CORRIDORS STAY OPEN	how: elk and deer cross farmland, not cul-de-sacs
WHY LOW	The chain holds only while the first link does. The land stays open as long as farming pays.

Reading the tiers

Education is high because every actor in the chain already exists and already behaves this way: the contract pays, the family stays, the formula pays the district. Health is medium because the district has to choose to buy locally first, and that choice is not yet made. Housing is medium for the same reason: the greenhouses have to be built. Environment is low not because the chain is weak but because it depends on the first link holding for decades. A tier is a statement about the weakest link in the chain, never an average.

The domains the Fractal Map uses: economy, education, health, housing, environment, safety, relationships and family, democracy and government. We pick the four our solution reaches first, and we leave the rest for the second map.

Solution to solutions: our map

Our solution at the center, four domain rows, three or four nodes each, a "how" line under every node, one tier per row.

THE SOLUTION AT THE CENTER

DOMAIN ROW ONE · DOMAIN: _____

NODE 1

NODE 2

NODE 3

NODE 4

how:

how:

how:

how:

☐ High

☐ Medium

☐ Low

DOMAIN ROW TWO · DOMAIN: _____

NODE 1

NODE 2

NODE 3

NODE 4

how:

how:

how:

how:

☐ High

☐ Medium

☐ Low

DOMAIN ROW THREE · DOMAIN: _____

NODE 1

NODE 2

NODE 3

NODE 4

how:

how:

how:

how:

☐ High

☐ Medium

☐ Low

DOMAIN ROW FOUR · DOMAIN: _____

NODE 1

NODE 2

NODE 3

NODE 4

how:

how:

how:

how:

☐ High

☐ Medium

☐ Low

The tier belongs to the weakest link in the row. If one "how" line fails the link test on page two, the row is low until the line is rewritten. A row with three strong nodes is better than a row with four and a guess. Domains: economy, education, health, housing, environment, safety, relationships and family, democracy and government.

Problem to problems: the cascade

One problem traced downhill, step by step, with the mechanism on every step and the ledger each cost lands in.

Problems create problems the same way solutions create solutions, and the chain is written the same way. One decision sits on one budget line and its cost lands on others. We trace the cascade until it reaches a domain nobody at the original table was thinking about, then we name the ledgers.

WORKED EXAMPLE: ONE CUT BUS ROUTE	
1 · TRANSIT	The county cuts one rural bus route. how: the route was the night shift's ride to the plant. No ride, no shift, and the plant fills the slots from town.
2 · WORK	Workers without cars lose shifts. how: lost income, so copays get skipped, and the midday run to the clinic is gone too.
3 · HEALTH	The clinic loses patients who cannot get there. how: visit counts fall, and the grant depends on them. Families drive to the next county's clinic, so nobody is free to collect a student at five.
4 · EDUCATION	The school loses after-school attendance. how: parents who shopped while the program ran now drive straight home.
5 · LOCAL ECONOMY	The one grocery loses evening trade and shortens hours. how: every errand above now happens by borrowed car, after dark, on a two-lane road. Trips go up, and crashes follow trips.
6 · PUBLIC SAFETY	More driving, more crashes on the county road.
THE LEDGERS	The route sat on one budget line. Its riders sat on five others: the plant's vacancies, the clinic's grant, the school's program, the grocery's hours, the sheriff's crash log. None of those lines live in the transit budget, so the cut looked free.

OUR CASCADE · THE PROBLEM AT THE TOP, THEN EACH STEP IT CAUSES		
DOMAIN	WHAT CHANGES	HOW, BECAUSE OF THE STEP ABOVE
1		
2		
3		
4		
5		
6		

THE LEDGER BOX
Which budgets, grants, dockets, or logs does the cost land in that the original decision never counted? One per line, with its step. Deconstruction traces a cost to the ledgers it lands in. A cut that looks free on its own line is a cost moved, not removed.

Solution to the next problem: the new shadow

Three good solutions, each creating the next problem. Then three rows for our own.

Every solution casts a new shadow, and the method is to name it and move the problem forward. A shadow is the specific problem that exists only because the solution worked. It is not a reason to stop. It is the next component, and the row ends by naming the blueprint that would address it. The three reference rows come from published blueprints on encampments, transport, and school lunch.

THE SOLUTION	WHAT IT DOES	WHAT FOLLOWS	THE NEW SHADOW	THE NEXT BLUEPRINT
Emergency shelter beds open a winter surge of beds, funded for one season	The encampment clears people take the bed because the bed is there	The same people cycle through beds with no continuity each night is a new intake, nobody holds the file	Continuity of care the problem the beds revealed	One steward per person across beds, clinic and housing list
A highway is built four lanes where two were	Commutes shorten forty minutes becomes twenty	Housing spreads out along it cheap land an hour out is now in reach	Sprawl, and the bus route nobody can run density too low for any route to pay	Land use rules that keep new growth in nodes
Free school lunch for every child no form, no proof of income	No means-testing stigma the paid line and the free line become one line	The cafeteria budget doubles twice the trays, same kitchen, same staff	Funding the kitchen the problem the meals revealed	A county food contract that feeds the kitchen and the farms

The shadow test

A shadow is written well when it would not exist if the solution had failed. "People still need housing" is not a shadow of the shelter beds, it is the umbrella problem. "The same people cycle through beds with no continuity" exists only because the beds opened and were used. We check each of our rows:

- ☐ The shadow exists only because the solution worked
- ☐ It is named specifically, not as "unintended consequences"
- ☐ The next blueprint names a mechanism, not a wish
- ☐ The "what follows" column passes the link test on page two

Phase 5 of every blueprint names the new problem this creates. Phase 8 hands it to the next blueprint. A real solution moves the problem forward rather than pretending to end it.

The map itself: two loops, worked

One solution at the center. Likely benefits loop out one side, likely consequences the other, each node in a confidence tier.

The full map joins the three kinds of connection into two loops. On the left, likely benefits chain outward and return to the center as the next solution: a saving funds year two, a revenue funds the program. On the right, likely consequences chain outward and return to the center as the next component. The example is the published blueprint on restoring elk populations: fence retrofits on the migration lines, seasonal closures on calving ground, crossings on the highway, rebuilding landscape continuity while holding land use and ecological function.

LIKELY BENEFITS		LIKELY CONSEQUENCES	
HIGH · CORRIDORS RESTORED	how: retrofitted fences and spring closures reopen the migration lines the herd has used for centuries	HIGH · RANCH FENCING CHANGES COST LANDOWNERS	how: wildlife-friendly fence becomes the standard, and the ranch pays for the retrofit
MEDIUM · FEWER VEHICLE COLLISIONS	how: elk cross at the new underpasses, not the road grade	MEDIUM · SLOWER ROAD PROJECTS	how: the corridor standard that changed the fences reaches road design. Every project adds a crossing review. Next component.
MEDIUM · LOWER COUNTY EMERGENCY COSTS	how: each avoided collision is an ambulance run, a tow and a deputy not dispatched	MEDIUM · MOTORIZED RECREATION LOSES TRAILS	how: the spring closures that protect calving ground close motorized routes for the season. Next component.
LOW · RANGE HEALTH, THEN HUNTING AND TOURISM REVENUE	how: the herd spreads across the range instead of grazing the valley floor bare. More tags and outfitter days follow.	THE RETURN	Each consequence marked "next component" goes back to the center as its own blueprint, and the map is drawn again.
THE RETURN	The saving funds year two. The revenue funds the program. Solutions create solutions.		

How the example was built

The benefits chain was written in order, each node from the one before: the fences reopen corridors, open corridors mean elk cross at the underpasses, a crossing at the underpass is a collision that did not happen, and a collision that did not happen is a dispatch the county did not pay for. The consequences chain runs on a shared standard: the corridor standard that changed the fences reaches road design, and the closures that protect calving ground close motorized trails. Every node carries its "how" line, and the two low-tier nodes are low because the herd has to spread first and the market has to follow.

THE RULE

A consequence node is not a complaint. It becomes the next component, with its own blueprint, and the map is drawn again. Two loops, one center. Benefits return as the next solution. Consequences return as the next component.

The tiers on the example are judgment calls made the way the sheet asks us to make them: by the weakest link, never by a number. Confidence tiers are high, medium or low, never a percentage.

The map itself: our two loops

Our solution in the center. Benefits chain down the left and return as the next solution. Consequences chain down the right and return as the next component.

THE SOLUTION AT THE CENTER

LIKELY BENEFITS · NODE 1

how:

☐ High ☐ Medium ☐ Low

LIKELY BENEFITS · NODE 2

how:

☐ High ☐ Medium ☐ Low

LIKELY BENEFITS · NODE 3

how:

☐ High ☐ Medium ☐ Low

LIKELY BENEFITS · NODE 4

how:

☐ High ☐ Medium ☐ Low

THE RETURN: WHAT FUNDS OR FEEDS THE CENTER

LIKELY CONSEQUENCES · NODE 1

how:

☐ High ☐ Medium ☐ Low
☐ Next component

LIKELY CONSEQUENCES · NODE 2

how:

☐ High ☐ Medium ☐ Low
☐ Next component

LIKELY CONSEQUENCES · NODE 3

how:

☐ High ☐ Medium ☐ Low
☐ Next component

THE RETURN: WHICH CONSEQUENCES GO BACK AS COMPONENTS

THE RULE

A consequence node is not a complaint. It is the next component to solve. We mark it, we carry it to the audit on the next page, and the map is drawn again.

The audit: loop, node, kill switch

Phase 5 of the blueprint asks these of every solution. We answer them from the map we have drawn.

The fractal audit turns the consequences loop into three written commitments. The recursive loop says in prose what new shadow this light casts. The new problem node gives the shadow a specific name. The kill switch is the measurable signal that the solution is doing more harm than good, decided now, in calm, not later, in argument.

THE RECURSIVE LOOP

Every solution creates a new problem. What new shadow does this one cast, and what tension emerges from solving this one? A few sentences, specific to our solution, built from the consequences nodes on page eight.

THE NEW PROBLEM NODE

A specific name. Not "unintended consequences" but the thing itself, and the people it lands on.

- ☐ It names who bears it
- ☐ It exists only because the solution worked

THE KILL SWITCH

The number, event, or pattern that would require us to stop and redesign. Precise enough that two readers would agree whether it has tripped.

- ☐ Measurable, and someone is named to read it
- ☐ It names the harm, not a dip in enthusiasm

WORKED EXAMPLE: THE ELK BLUEPRINT, AUDITED FROM ITS MAP

RECURSIVE LOOP	The corridor standard that reopens the migration lines becomes a standard for everything that crosses them. The ranch pays for its fence, the road project waits for its crossing review, the motorized rider loses the spring. The tension: the herd's continuity against the landowner's and the traveler's freedom to use the land as before.
NEW PROBLEM NODE	Burden falling mainly on private landowners along the corridor, without compensation.
KILL SWITCHES	If burden falls mainly on private landowners without compensation, pause expansion and rebalance incentives. If a zone shows no biological response after five years, require a driver review rather than doubling down on the same mechanism.

CAPACITY IMPACT

DDS is a capacity-building framework before it is a solution machine. The last audit question is whether this solution leaves the people who carry it more able to solve the next problem, or less. One line of reasoning under each.

☐ Builds ☐ Degrades **future problem solving** (the collective ability to tackle the next-level challenge)

☐ Builds ☐ Degrades **dialectical maturity** (the ability to hold complexity without regression into a false binary)

☐ Builds ☐ Degrades **relational responsibility** (the ability to maintain mutual dependence under stress)

Component status and what next

Phase 7 and Phase 8 of the blueprint. The map produced a list. This page records it and asks what we do with it.

One blueprint never solves the umbrella problem, and the map is how we remember that. Phase 7 exists to prevent the silver bullet illusion, the belief that one solution closes the file. We restate the umbrella, name the component this blueprint addressed, and list what is still open, taken from the consequences loop and the new problem node.

UMBRELLA PROBLEM · THE MACRO PROBLEM, RESTATED IN ONE LINE

THIS BLUEPRINT ADDRESSED · THE SPECIFIC DRIVER THIS SOLUTION MOVES

REMAINING COMPONENTS

Every consequence node marked "next component," the new problem node from the audit, and any driver of the umbrella we have not touched. One per line, with where it came from.

Status: component ____ of ____ complete.

WORKED EXAMPLE: THE ELK BLUEPRINT	
UMBRELLA PROBLEM	Elk decline in the West: a migratory animal asked to survive inside a landscape organized for fragmented human use.
THIS BLUEPRINT ADDRESSED	Habitat fragmentation and winter-range degradation, migration corridor disruption, and governance alignment across jurisdictions.
REMAINING COMPONENTS	Partly open: CWD containment, predation in low-recruitment herds, harvest recalibration, working-lands conflict (the new problem node). Unresolved: climate-scale drought, exurban growth pressure, places where local legitimacy is too low to hold limits.

WHAT NEXT: THE PHASE 8 MENU

We choose one. The map does not make the choice, it only makes the options honest.

☐ A. Publish this blueprint.

Mark the component complete and carry the list above forward.

☐ B. Solve the next component.

Begin a blueprint for the next driver. Which one: _____

☐ C. Revise this blueprint.

Deconstruction (change the entry point), dialectics (shift the weighting or add a tension), mechanism (a different solution), feasibility (stronger grounding), or narrative (tone or emphasis). Which: _____

☐ D. Clarify before proceeding.

The question we need answered first: _____

☐ E. Start fresh.

A new umbrella problem, with this map kept as the record of what this one reached.

When the next component gets its blueprint, that solution goes in the center and the map is drawn again. That is what fractal means here: the same questions at every scale, in words a person can check.