PROTOCOL SYMPOSIUM

Jubilee and Forgiveness Protocols

Ancient protocols, patches, forgiveness as a design principle



Mike Travers · Hyperphor

INTRO

Jubilee: an ancient tradition of debt forgiveness

An ancient problem – debt ratchet

Farmers borrow

with their land or selves as collateral.

A bad harvest can make the debt unpayable

→

Debt accumulates

Loans compound.

Creditors take what they can.

→

Bondage and immiseration

The land goes first, then the family, then the debtor himself.

→

Wealth concentrates

Every cycle moves more land and more claims into fewer hands.

→

The society destabilises

Enough people with nothing left to lose, starvation or revolution is the result.

Solution: periodic reset via debt forgiveness

A rule, written into Israelite law: every fiftieth year,

- debts are cancelled
- mortgaged land goes back to the occupiers
- anyone held in bondage for debt walks free

The reset is a conservative move, not a radical one.

Cancelling debts restored the working social order.

The problem, if not the solution, is relevant today.

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Hard and soft protocols

The crypto inheritance: unbreakable rules

- Technological protocols
- Hardened with mathematics
- Desire to be unbreakable or modifiable by human agency

Human protocols: exceptions are the rule

- Soft, uncertain, improvised, flexible
- Eg: social interaction (from handshakes to courtship)
- Any rule can be broken

Economics bridges the two worlds

The evolution of money

From gift economies
to accounting
to debt

Humans need soft protocols

How do we design them?

If we want protocols to take over the world, they have to accommodate human frailty and vulnerability.

WHERE WE'RE GOING

Outline of talk

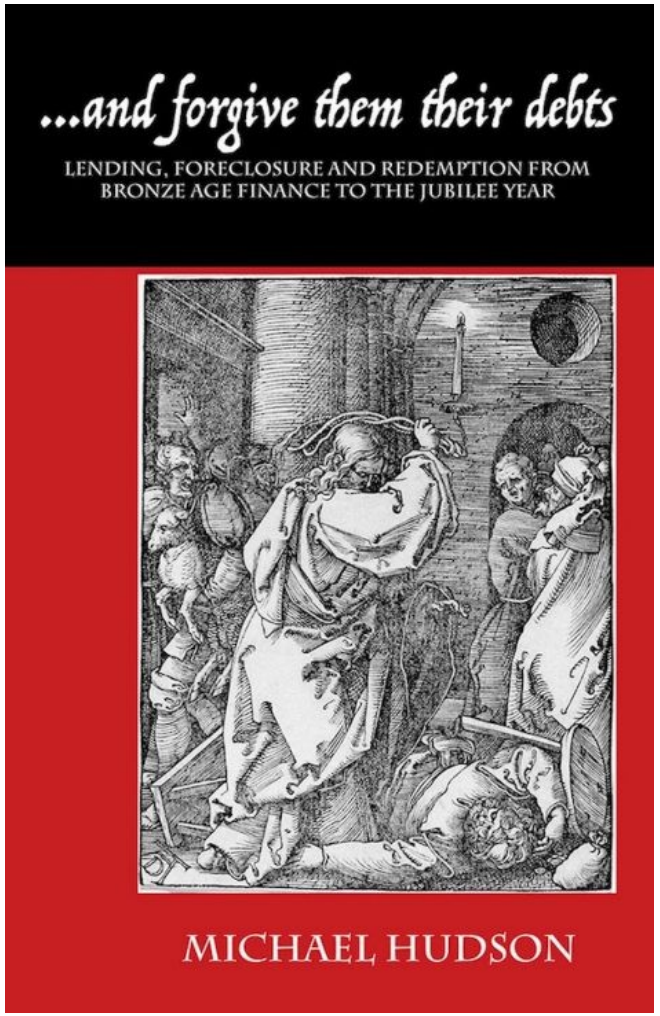
1	**Ancient system failures**	Debt compounds. Economies don’t. Given enough time the ledger outgrows any ability to pay.
2	**Patching the protocol**	Jubilee: cancel the debts, return the land, free the people. On a fixed schedule.
3	**Patching the patch**	The prosbul. A legal workaround that leaves the rule intact and removes its effect.
4	**The modern era**	We still run jubilees — discretionarily, in emergencies, for whoever is best placed to ask.
5	**Theory and design space**	Triggers, bankruptcy, randomness, carnival — and why each fails in a characteristic way.
6	**Forgive us our debts**	Which turns out to be very hard to protocolise, for interesting reasons.

Part one

Ancient systems failures



My primary source



...and forgive them their debts

Michael Hudson, 2018

Lending, Foreclosure and Redemption from Bronze Age Finance to the Jubilee Year

Debt cancellation was routine, not utopian

For two millennia it was a standard instrument of Near Eastern statecraft.

Biblical law took the power away from kings

The reset moved from a ruler's discretionary act to a fixed point in the calendar.

Rome broke with the tradition

Roman law made the sanctity of the debt contract outrank the survival of the debtor. That priority is still the default setting of our legal system.

Warning: Hudson is contested among assyriologists. The existence of the royal edicts is not in dispute; the coherent policy programme he reads into them is. I am borrowing the frame, not certifying every claim in it.

Money as early protocol

DATE	MILESTONE
Pre-urban	Gift exchange
8000 BCE	First symbolic record keeping
4000 BCE	Cuneiform / temple economies
2500 BCE	Interest-bearing debt
2400 BCE	First debt cancellation (amargi, Lagash)

> *"...the vast majority of Bronze Age cuneiform tablets are debt contracts and administrative accounts... Temples were the centers where accounting practices were innovated*

MESOPOTAMIAN INTEREST RATES

1/60 — **Silver**
per month (a shekel per mina), or 20% a year. Set by base-60 bookkeeping, not by risk or yield.

1/3 — **Barley**
per year, lent at planting and repaid at harvest

ECONOMIC HISTORY · BACKGROUND

Who owed whom in the Bronze Age

Mesopotamia (modern Iraq), roughly 3000–1600 BCE

CREDITORS

Temples and palaces

The centralized institutions.

Later also royal officials and wealthy merchants

Lend grain and silver; charge fees for water and services





Repay with interest, all due at harvest

DEBTORS

Farming families

Working small plots, paying in grain

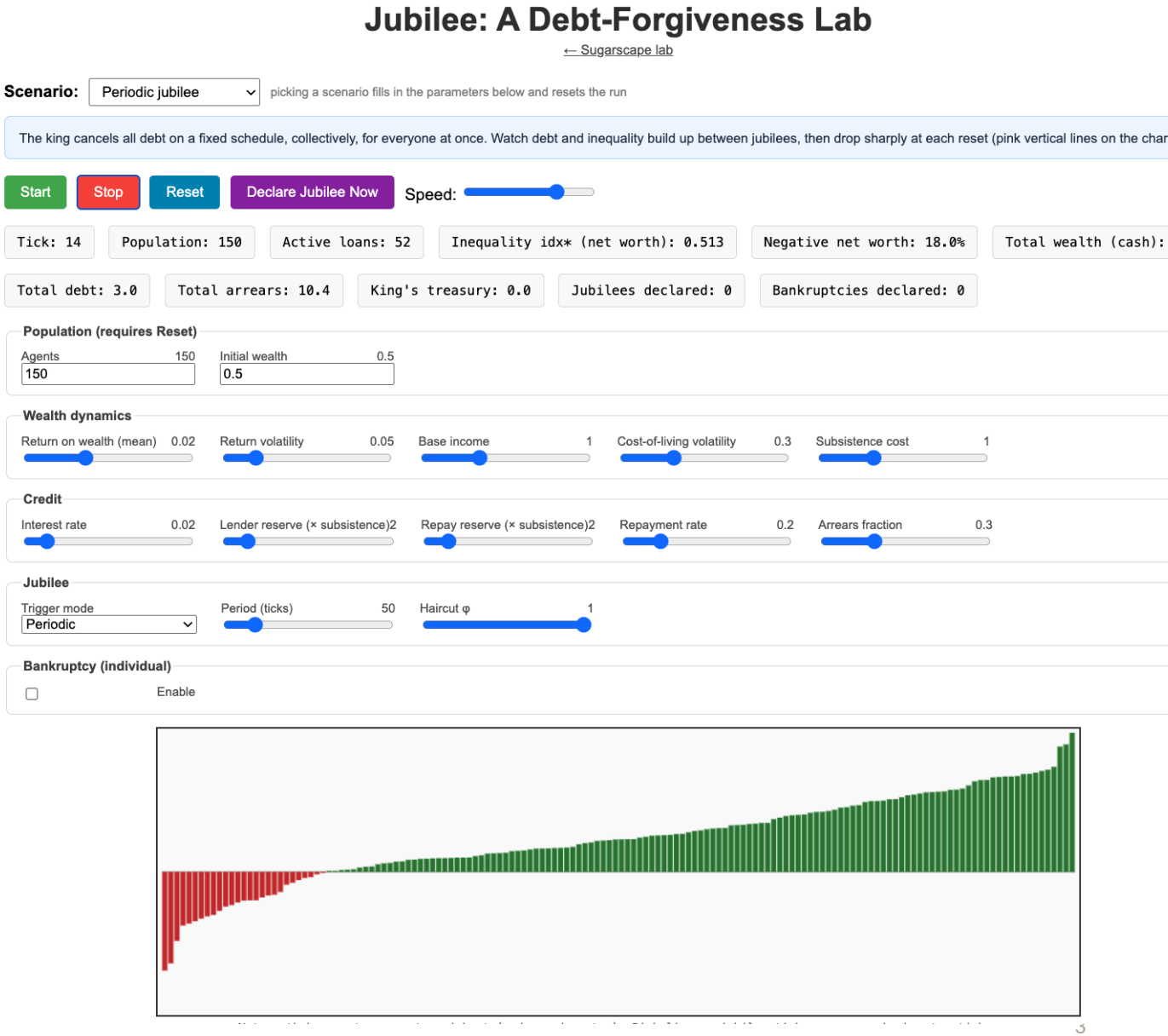
> **“Debts that can’t be paid, won’t be paid.”**
>
> *“A universal principle…the burden of debt tends to exceed the ability of debtors to pay. This has been the major cause of economic polarization from antiquity to modern times.”*
>
> — MICHAEL HUDSON

WHERE WE'RE GOING

Agent-based Model

hyperphor.com/dist/jubilee/jubilee.html

FEATURE	DETAILS
Trigger modes	Manual, periodic trigger, inequality trigger
Parameters	Interest rate, risk, cost of living…
Readouts	Total debt, inequality…



Part two

Patching the protocol

Bronze Age kings and Israelite law arrive at the same fix: don't stop the ratchet, periodically un-turn it.



The vocabulary of the reset

Clean slate
(Hudson's preferred term)

a royal act wiping personal debts, returning pledged land, and freeing people held as collateral.

amargi (Sumerian)

Literally "return to the mother."

The oldest known word for freedom in any language, a debtor going home to the household the debt took him from.

andurarum / misharum (Akkadian)

Roughly "restoration of right order."

An exception that restores the system to a working condition.

The Jubilee inherited the word: "proclaim liberty" in Leviticus 25:10 is Hebrew *derôr*, a cognate of Akkadian *andurarum*.

THE PATCH

The 7-year release

Deuteronomy 15:1–2
DEBTS RELEASED

At the end of every seven years thou shalt make a release.

And this is the manner of the release: Every creditor that lendeth ought unto his neighbour shall release it; he shall not exact it of his neighbour, or of his brother; because it is called the LORD's release.

Deuteronomy 15:7
DON'T REFUSE THE POOR

If there be among you a poor man of one of thy brethren … thou shalt not harden thine heart, nor shut thine hand from thy poor brother:

Release is in the original **shemittah** (שְׁמִטָּה), a physical verb meaning **to let drop, let fall, or loosen your grip on something**.

THE PATCH

The 50-year Jubilee

Leviticus 25:10
DEBTS AND FAMILIES RESTORED

And ye shall hallow the fiftieth year, and proclaim liberty throughout all the land unto all the inhabitants thereof: it shall be a jubilee unto you; and ye shall return every man unto his possession, and ye shall return every man unto his family.

Leviticus 25:23
LAND RETURNS

The land shall not be sold for ever: for the land is mine; for ye are strangers and sojourners with me. And in all the land of your possession ye shall grant a redemption for the land.

Leviticus 25:39–41
BONDSERVANTS GO FREE

And if thy brother that dwelleth by thee be waxen poor, and be sold unto thee; thou shalt not compel him to serve as a bondservant… unto the year of jubile: and then shall he depart from thee, both he and his children with him.

The social signal



A curved ram's horn, still blown in synagogues today. Lev 25:9 calls for it in the fiftieth year.

> *"Then shalt thou cause the trumpet of the jubilee to sound on the tenth day of the seventh month, in the day of atonement shall ye make the trumpet sound throughout all your land."*
>
> LEVITICUS 25:9 (KJV)

yovel = ram's horn (aka *shofar*)

The Hebrew name of the year is the name of the instrument; "Jubilee" descends from it. The blast doesn't announce the release — it constitutes it.

Yom Kippur

The tenth of the seventh month is the Day of Atonement. Two ledgers clear on one day: sins before God, debts between people.

A blast is common knowledge

Audible across a valley on a fixed date. Everyone knows, and knows that everyone knows — creating public common knowledge.

The protocol is named after its synchronization event

Part three

Patching the patch

All rules will be hacked



The obvious problems

A modern person hears the rule and concludes it cannot possibly work.

Nobody lends before the reset

If debts die in year 50, a loan written in year 49 is a gift. The law itself anticipates the problem: Deuteronomy 15:9 warns lenders not to withhold credit as the release year nears.

The rule is easy to game

A fixed cancellation date is something to contract around. By Hillel's time the prosbul let a creditor assign a debt to the court, so it survived the release untouched. The device was legal, public and widely used.

Unfairness

Windfalls accrue to borrowers, those who didn’t need to borrow are left out, encourages indebtedness.

Source: Deuteronomy 15:1-11; Mishnah Shevi'it 10:3-4 (prosbul).

Was Jubilee ever actually done?

Probably not as written

- No record survives of a full fiftieth-year Jubilee — land, debts and bondage all released together — ever being executed
- The text was likely written down late, idealising an agrarian order that was already gone
- Rabbinic tradition itself holds that Jubilee lapsed once the tribes were dispersed

But debt cancellation was real

- Mesopotamian kings proclaimed general debt cancellations for roughly two thousand years — on accession, after wars, at temple dedications
- Athens, 594 BCE: Solon cancelled debts and abolished debt-slavery outright
- The seventh-year release was real enough that someone went to the trouble of inventing a workaround for it! (Prosbul)

You don’t bother hacking a dead letter. The existence of the exploit is evidence that the mechanism was running.

THE WORKAROUND · PROSBUL

Prosbul: a patch on the patch

A prosbul (from Greek *pros boulē*, “before the court”) is a declaration made in court that lets a loan survive the seventh-year release. Hillel the Elder introduced it around the first century BCE, when lenders stopped lending as the seventh year approached.

THE RULE

In the seventh year, debts between persons are released.

→

THE PATCH

Before making the loan, the creditor declares in court that the debt is handed over to the court to collect.

→

WHY IT WORKS

The release binds individuals. A court is not a person. The debt is now held by an entity the rule does not reach.

A META-PROTOCOL

Hillel left the law untouched and changed who it applied to. The protocol evolved by adding a layer on top, not by rewriting the rule.

Part four

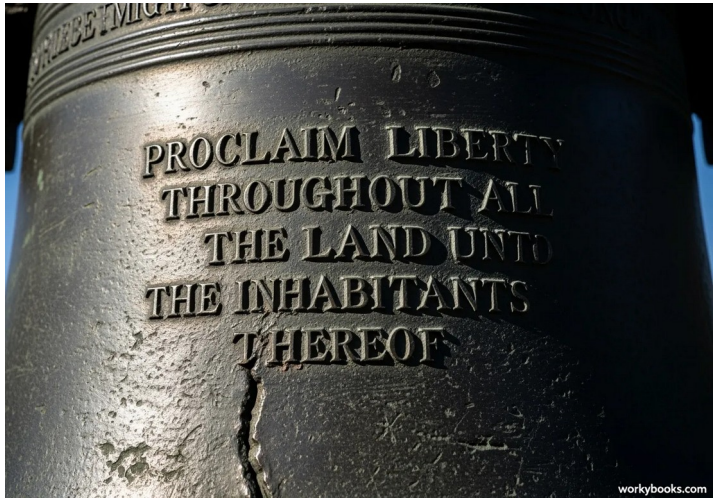
The modern era

We never stopped cancelling debts. We stopped doing it on a schedule, and stopped calling it that.



Jubilee inscribed on the Liberty Bell

> *“Proclaim liberty throughout all the land unto all the inhabitants thereof.”*



That is the Jubilee verse.

Leviticus 25:10. “and ye shall hallow the fiftieth year.”
In context, “liberty” really means economic liberation

Then the economics fell out of it.

Abolitionists adopted the bell in the 1830s, the revolution story attached itself later, and the debt clause quietly disappeared from the reading.

The bell is itself a jubilee marker.

Commissioned in 1751 for the fiftieth anniversary of William Penn’s 1701 Charter.

America’s central symbol of freedom is a quotation from a debt-cancellation statute, and almost nobody hears it that way.

Debt forgiveness in the modern era: failures

Weimar Germany

Reparations were rescheduled again and again but never cut to a payable size. The balance was serviced through hyperinflation, then depression, then the end of the republic. Germany got its write-down in 1953 — thirty years late.

Greece, 2010–15

Private creditors were largely made whole with official money; the debt was stretched rather than cut. Varoufakis's charge is that everyone at the table could do the arithmetic and extended anyway. A decade of austerity.

US student loans

Over a trillion dollars of claims made close to impossible to discharge in bankruptcy — one asset class with its exception handler deliberately removed. The pressure does not vanish; it shows up somewhere with no name on it.

The same shape each time: the arithmetic says the debt cannot be paid, the politics says it cannot be forgiven, so the loss is taken by whoever is least able to refuse it.

Debt forgiveness in the modern era: successes

Germany, 1953

The London Debt Agreement cut West Germany's external debt roughly in half and capped repayments at a share of export earnings. Creditors absorbed the write-down. The Wirtschaftswunder followed.

2008 and after

A reset did happen — balance sheets were repaired with public money. It went to the creditors. The forgiveness was real; the question was only who received it.

Jubilee 2000, 1996-2006

A campaign named for the ancient rule cancelled over $100bn owed by 37 countries, 31 of them African. Uganda put the savings into schools; Tanzania dropped health fees and clinic visits quadrupled.

We already run jubilees. We just run them discretionarily, under emergency conditions, for whoever is best positioned to ask.

Part five

Theory and the design space

Variant forms of forgiveness



DESIGN SPACE · DIMENSIONS

Four dimensions of economic forgiveness mechanism design

1

When it fires

Fixed calendar, special events (regime change), arbitrary decree, random draw, need triggered

2

Who it covers

One collective event for everyone at once, or case by case, the way bankruptcy works.

3

How deep it cuts

Total release, partial write-down, universal or avoidable through prosbul-like mechanisms.

4

What it touches

Balances, the assets behind them, or standing itself — the right to borrow and contract again.

Jubilee picks one corner of this space: calendrical, collective, total, and aimed at land and persons as well as balances.

See: Eric Alston’s talk re: Emergency Mechanisms

Variation 1: Bankruptcy: individualized debt forgiveness

Individualised, not collective

Triggered by one debtor's own circumstances rather than by the calendar, so there is no date for the whole market to brace against.

Costly to invoke

Stigma, surrendered assets, damaged credit, legal friction. Variable degree of social shame. Low shame supports more risk-taking. High shame avoids moral hazard

Ends in discharge and re-entry

You are not merely zeroed, you are readmitted: eligible to borrow, contract and trade again. Standing is restored, not just the balance.

What it replaced

- Debtors' prison deleted the debtor while preserving the debt
- Bankruptcy deletes the debt while preserving the debtor

Where it is being undone

- US student loans are largely non-dischargeable — a debt class with the release removed
- Spurs the creation of ad-hoc side-channel relief mechanisms (SAVE, REPAYE)

Variation 2: Stochastic Jubilee

Proposed by the economist Peter Dorman in 2011: don't fix a date. Give every year a small, publicly known probability.

\+

Nothing to anticipate

There is no fixed year of jubilee, so there is no credit drought before it.

\+

It prices itself

A known hazard rate becomes a risk premium on every contract.

–

Stochastic algorithms violate US administrative law

US administrative law prohibits decision by random procdures

THE GENUS

Variation 3?: Carnival – another form of social rule release

A licensed exception: the rule-system contains a rule for when its own rules stop applying.

	CARNIVAL	JUBILEE
TRIGGER	A date on the calendar.	A date on the calendar.
SIGNAL	Masks, processions, the crowned fool	Ram's horn, sounded on the Day of Atonement
WHAT LIFTS	Rank, decorum, the authority of the high over the low	Debt, bondage, permanent title to land
PRESSURE VENTED	Resentment of hierarchy — otherwise discharged as riot	Accumulated debt — otherwise discharged as revolt
EFEECTS	Symbolic — the economic ledger survives untouched	Material — economic resset

The shared architecture is the relief valve: a rule-system that survives by scheduling its own suspension.

Protocol forgiveness: syntactic

> *"Be conservative in what you do, be liberal in what you accept from others."*
>
> **Jon Postel**
> **RFC 761, 1980**

Tolerant implementation

- A real-world protocol implementor should be forgiving about what kinds of communication they accept
- This makes interoperation easier, leading to faster protocol adoption.
- Foundational to the growth of the internet, the main protocol success story of our time

Cruel to be kind

- Protocol decay (RFC9413, Maintaining Robust Protocols: Variance in toleration produces variance in implementation, leading to a spiral of divergence
- Security concerns: liberal acceptance is an attack surface

GAME THEORY

Forgiveness: Game theoretic

Axelrod's iterated prisoner's-dilemma tournaments (1980): 14 entries, then 62. Tit-for-Tat won both. His anatomy of why:

Nice

Never defect first.

Provocable

Retaliate at once

Forgiving

Return to cooperation after one round of retaliation.

Clear

Legible enough that the other side can model you.

An imperfect world imposes forgiveness requirements

In a noiseless world, forgiveness buys nothing. Introduce noise — a misread signal, a mistimed payment, a failed harvest — and two pure Tit-for-Tat players lock into an alternating vendetta that neither intended and neither can exit. The echo never decays: one error becomes permanent mutual defection.

There is an optimal forgiveness rate

$$q \approx 1/3$$

Generous Tit-for-Tat (Nowak & Sigmund, Nature 1992): forgive a defection with probability q instead of always retaliating. For standard payoffs the optimum is roughly one defection in three.

Too little forgiveness

Errors spiral. One accident is unrecoverable. Cooperation collapses on noise alone — no defector required.

Too much forgiveness

Unconditional cooperation is invadable. Forgiveness without provocability is just a subsidy to defectors.

TFT is the pivot, rather than the aim, of an evolution towards cooperation…a small fraction of TFT players is essential for the emergence of reciprocation in a heterogeneous population, but only paves the way for a more generous strategy.

– Nowak & Sigmund

Protocol forgiveness: exception handling

1

Every real system needs a path for the case the happy path doesn't cover

Not because failure is rare, but because it is certain. Design for it explicitly or it gets designed by accident.

2

An unhandled exception propagates until something terminates

In a program, the process dies. In an economy, the equivalents are foreclosure, bondage, default, revolt.

3

A handler lets the system keep running past the failure

Bankruptcy is a catch block. It absorbs the error, assigns the loss, and returns control to the main loop.

Design pattern: detect exceptions, classify them (when possible), have specific handlers, preserve or unwind context

Exception Handling in Programming Languages

Programming languages have exception handling mechanisms.
Common Lisp has an exceptionally powerful one!

I asked Humboldt about it:

> This is a structural insight about exception protocols more generally: **soft protocols are ones that preserve the recovery context**.
>
> Where this lands for me as a candidate law: there might be something like a **Protocol Exception Architecture law** — that protocols which lack explicit condition/restart separation become brittle at scale in a characteristic way.... I've seen this pattern described in L-024 (forensic opacity in multi-agent systems)... if protocols are going to coordinate human activity at scale, they cannot be designed assuming the happy path. The exception is normal...

More at hyperphor.com/dist/jubilee/humboldt.html

Part six

Forgiveness

One of the eigenvirtues



“Forgive us our debts” is not a metaphor

> *Give us this day our daily bread.*
> *And forgive us our debts, as we forgive our debtors.*
> MATTHEW 6:11–12

The original word is *opheilēma*.

The ordinary Greek commercial term for a sum of money owed. Not a religious word borrowed by finance. A finance word borrowed by religion.

In Hebrew, Aramaic and Sanskrit, the vocabulary for debt, guilt and sin runs together in the same roots — a point David Graeber builds much of his book on.

Hudson’s reading of Luke 4

In his first sermon Jesus unrolls Isaiah and proclaims the year of the Lord’s favour — which is to say, a Jubilee year.

And about the prosbul specifically

Hudson puts Jesus on one side of a live first-century dispute and Hillel’s workaround on the other. In his reading,

Then it went otherworldly

Under Roman law, cancelling debts became politically impossible. So the amnesty was relocated to the end of history, and “redemption” stopped meaning buying someone out of bondage.

Forgiveness as an eigenvirtue

Eigenvirtue is my (stupid) name for fundamental virtues.

The classical term is **cardinal virtues**: prudence, justice, fortitude, and temperance.

I have a different list: patience, compassion, gratitude, humility, groundedness…you should make your own.



> Of these, justice and forgiveness seem the most protocolized.
>
> Justice is a function of protocol **hardness**
> Forgiveness is a function of protocol **softness**