The Vibration that Ends All War

Nov 4, 2026 · @hans konstapel

War is the discharge of the remainder that a human life leaves unclosed at time-depth 53 of the net; a missile acts eleven to thirteen rings away from that depth and cannot reach it. A shared vibration, built as rings of three, closes the remainder at its own depth and carries the closure up seventeen to eighteen scales, to the leaders. This essay derives that result from the first distinction of the Vacuum.Net Theory, step by step, with every number recomputed.

1. The occasion

On 4 November 2026 the Volkskrant reported that European states will spend about €45 billion over ten years on ground-launched long-range weapons, with ranges from 300 to more than 2,000 km, including hypersonic missiles (Volkskrant, Ramdharie). The claims were checked against second sources.

Claim in the article	Second source	Finding
Hypersonica test in Norway, February, above Mach 6	The SCOOTER HS-1 demonstrator flew from Andøya on 3 February 2026, above Mach 6, more than 300 km (Army Recognition)	Confirmed; it was a single-stage test bed, not a weapon
Operational in 2029	Phased plan to strike capability by 2029 (Defense News)	Confirmed
€100 million raised "on Tuesday"	Only a Series A of €23.3 million (10 February 2026) found	Not confirmed
Twelve countries, €45 billion	ELSA core is six states (France, Germany, Italy, Poland, Sweden, United Kingdom); about £37 billion ≈ $50 billion is reported (Grosswald)	Amount plausible (£37 bn ≈ €43–44 bn); twelve countries not found

The question this essay answers: can the Vacuum.Net Theory show a more effective way to make war impossible than long-range weapons? The answer is built from the theory itself, not from the literature on war.

2. From the first distinction to the human

The human is the deepest knot whose own repair still goes round; the chain to it runs in sixteen steps from one strand. Steps 1–10 are proved or conditionally proved in Foundations 9.2 and Physics 9.0; steps 11–16 follow from them through N2, N3 and N5.

The ground

1. **One strand.** The first distinction is the strand returning to a place it has been (N1). A mark that contains itself alternates between marked and unmarked; that alternation is the imaginary unit i (Foundations II.1).
2. **Direction.** The first passage through a node fixes the direction. Every later passage is +1 (leaves as the first left), −1 (leaves the way the first came in) or 0 (otherwise). The three values sum to zero: the trinity (N3, T1). The net carries its history as its shape.

3. **Window of three.** The shortest return that goes round takes three steps (T2). Of the 27 windows, 9 close: all equal or all different (T3, T4).

4. **What stays.** Only what closes persists. What does not close stays as tension at its scale or passes on as carry to the next (N2, T1).

5. **Three closures.** Standing (0), meeting (x, −x) and ring (x, x, x). Standing and meeting close with carry 0. A ring closes and becomes one passage of the next scale (T7, T7.1).

Scale and form

6. **Scale.** Rings on rings multiply by three per step, meetings by two (T15). The two ladders never meet exactly (T16). Their nearest approaches are the closure depths 1, 2, 5, 12, 41, 53, 306, … (T17), and a remainder always stays: the comma (T18). Nothing closes completely, so tension and motion never stop.

7. **Address.** Every integer has exactly one trit word (T12). A closed configuration without a starting point is a rotation class (T13). Identity is membership of a class.

8. **The first knot.** In three dimensions three crossings are the least that cannot be undone: the trefoil, in a left and a right form (T19, T20). A rotor returns after 4π (T21). Charge is conserved (T22).

9. **Matter.** A stable particle is a closed winding; the electron is light closed on itself in a double loop (Physics C4, I1).

10. **Context.** The stiffness of the medium is a state function of the local density (N4, T23).

From knot to human (Konstapel, *De Mens als Knoop*, 17-8-2026)

11. **Thing.** A thing is a pattern of contacts that returns. The strand through it is replaced continuously; the pattern is not.

12. **Life.** A contact without a tension difference is not laid again and falls away (N2). Life is a closure that relays itself as long as something flows through it.

13. **Depth.** A knot of knots takes boundary inward and therefore lasts longer than its parts (N5). Molecule, cell and human are one construction at three depths.

14. **Ceiling.** Repair has to go round the whole pattern, so the tower of closures is finite. **The human is the deepest knot whose repair still goes round.**

15. **Form.** A new knot is laid on the strand of two existing knots, under the tension of that moment; the first passage fixes the direction (N3). Origin and moment are one form, and that form is who someone is. Identity changes only by a jump of class.

16. **What depth yields.** All cycles run at once, from seconds to decades. Perceiving is contact. Acting is offering: what fits returns. Rest is layered; each layer has its own repair.

3. Where the human sits

The human body lies at ring depth 16 in space and the human life ends at time-depth 53, a closure depth of the theory. Neither number was put in: the units come from hydrogen.

Physics 9.0 (III.2) fixes one length and one time by hydrogen with its reduced mass: $S_o = 1/(2R_H) = 4.5588 \times 10^{-8}$ m and $T_o = S_o/c = 1.5207 \times 10^{-16}$ s. On the ring ladder the layer at depth n has length $3^n \cdot S_o$ and time $3^n \cdot T_o$ (Foundations T15). The depth of anything is therefore $n = \log_3(\text{measure} / \text{unit})$.

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n = \log_3\left(\frac{L}{S_0}\right), \qquad n = \log_3\left(\frac{t}{T_0}\right)
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Object	Measure	Depth in space	Depth in time
Atom (Bohr radius)	5.29×10^{-11} m	−6.2	
Cell	10 µm	4.9 (closure depth 5)	
Human body	1.7 m	15.9 (ring 16 = 1.96 m)	
Heartbeat	1 s		33.2
Day	86,400 s		43.5
Year	3.156×10^7 s		48.9
Generation	25 years		51.8
Human life	80 years		52.9 (closure depth 53 = 93.4 years)
Earth radius	6,371 km	29.7	
Solar winding edge	5,350 AU	46.6	
Milky Way radius	50,000 light years	58.7	
Galactic year	225 million years		66.4
Universe (c/H_o, $H_o = 70$)	1.32×10^{26} m	70.1	70.1

Four findings follow.

1. **The human sits at 16.** A body of 1.7 m lands at depth 15.9; ring 16 is 1.96 m.
2. **A human life lies at time-depth 53.** That is one of the closure depths 1, 2, 5, 12, 41, 53, 306, … (T17), the denominators of the convergents of $\log_2 3$ (OEIS A005664). The cell lies at 5, also a closure depth.
3. **The human is one ring in space and twenty rings in time.** It occupies ring 16 in length and runs from 33 (heartbeat) to 53 (lifetime) in time: many cycles through one closure.
4. **A life is a near-closure.** At depth 53 the ladders ×2 and ×3 miss by $2^{84}/3^{53} = 0.99791$, a remainder of 0.2086 % or 3.615 cents (T18). Because $2^n \neq 3^k$ (T16), the remainder never vanishes. What does not close passes on as material of the next scale (N2, N5). The next closure depth, 306, lies at 4.8×10^{122} years, far beyond the age of the universe: the human is the last near-closure before the ladder runs empty.

4. What war is

War recurs at time-depth 52.4–53.2, the depth of one human life: it is the discharge of the remainder that a life leaves unclosed.

The same rule (depth = $\log_3$ of the measure over the hydrogen unit) applied to the periods of war found in the literature gives:

Period	Length	Depth in time
Long wave of war and prices (Goldstein)	≈ 50 years	52.4
Human life	80 years	52.9
Closure depth 53	93.4 years	53.0
War-and-peace cycle (Toynbee)	≈ 115 years	53.2

The reading follows from Section 3.

1. **War sits at the depth of a human life, not above it.** Both cycles fall at 52.4–53.2, around the closure depth 53 where a life also falls.
2. **War is the remainder discharging.** A life almost closes at 53; the remainder of 0.21 % stays open (T16, T18). What does not close passes on as tension (N2). Every irreversible discharge occurs at a mesh with an address (Physics T6). War is that remainder returning at the same depth and discharging, roughly once per lifetime, at the seam between two groups.
3. **Why at the seam.** Groups are knots of people, the same operation one level up (N5). Two different closed configurations joined by a seam always carry tension: the seam closes only if B = A (T11). Of the 81 ordered seams between closed windows, 9 close, 36 have one open window and 36 have two (recomputed).
4. **Why it comes as a jump.** Drift within a class is not felt in the slow layers, because feeling runs on a faster layer (step 16). It accumulates and then turns over in one step: a change of class (step 15).

In one sentence: **war is the remainder of the human life that does not close at time-depth 53 and discharges there, on the seam between groups.** The periodicity of war is itself disputed in the literature; the arithmetic of the depths is exact.

5. Why missiles cannot end it

A missile works at space depth 27–29 and adds one more equal trit to the seam; three equal trits form a ring that carries the conflict one scale up.

Wrong depth. The ranges in the Volkskrant article, 300 to 2,000 km, lie at space depth 26.9–28.6, the scale of the Earth (29.7). The human lies at 16 and war at time-depth 53. A missile touches neither.

Wrong closure. "More of the same" is +1 in the trit rule: the passage leaves the node as the first passage left it (N3). The table shows what equal trits do at one address (Foundations T1, T7.1; recomputed).

Sum at one address	Digit kept	Carry to next scale	Reading
1 + 1	T	1	Open window: tension stays and part moves up
1 + 1 + 1	0	1	Ring: closes here, one whole unit moves up

Sum at one address	Digit kept	Carry to next scale	Reading
1 + T	0	0	Meeting: closes, nothing moves up
1 + 0 + T	0	0	Triad: closes, nothing moves up

Twelve states adding the same trit make first an open window and then a ring. The conflict does not close; it moves a scale up: local, then regional, then larger. That is N5 in arithmetic.

The record on this seam. The sequence of steps between Europe and Russia reads as trits (Arms Control Association; FAS, Nitze on INF terminology).

Years	Step	Trit
mid-1970s	Soviet SS-20 deployment in Europe	+1, first passage
1979–1983	NATO dual track: Pershing II and cruise missiles	+1: open window
1987–1991	INF Treaty, "double zero": both sides remove all ground-launched missiles of 500–5,500 km, 2,692 destroyed by 1 June 1991, on-site inspection	−1: meeting, carry 0
2014–2019	US alleges a Russian violation (9M729), Russia denies; US withdraws 2 August 2019	+1: the route reopens
2024–2026	ELSA; about €45 billion, hypersonic weapons	+1, +1: third equal trit, ring, carry upward

The double zero of 1987 is the one place on this seam where a meeting was laid, and the seam stayed closed for almost three decades. Missiles cannot end war because they are the arithmetic that moves it up.

6. Tempering the remainder

The remainder cannot be removed, only placed: gathered in one place it is the wolf, spread over every cycle it disappears from hearing. War is the wolf of the human life.

The musical precedent. Twelve pure fifths do not fit into seven octaves; the excess is the Pythagorean comma, $3^{12}/2^{19} = 1.013643$, 23.46 cents (recomputed). In Pythagorean tuning the whole comma lands on one fifth, which then sounds false: the wolf. Stevin spread the comma over all twelve fifths, each 1.955 cents narrow; twelve such fifths make exactly seven octaves and the wolf is gone (CNRS, Manchon). The closure depths of the theory are the best equal temperaments.

Divisions of the octave	Error of the fifth
12	−1.955 cents
41	+0.484 cents
53	−0.068 cents
306	+0.006 cents

The remainder of a life, spread. The remainder at depth 53 is 0.2086 %. Spread evenly, it is a small fixed share of every cycle (recomputed):

Over	Remainder that needs its place
One life (93.4 years)	71 days
One year	18.3 hours
One day	3.0 minutes

The institution that did this at depth 52.4. Leviticus 25 sets a jubilee every fiftieth year, after seven cycles of seven: land returns to its original holders, bonded servants are released, land lies fallow, and land can only be leased until the next jubilee (Wikipedia, Yovel). Older still, Mesopotamian rulers proclaimed clean slates between about 2400 and 1400 BC (*amargi* in Lagash, "return to the mother"; *andurarum* in Ashur; *misharum* in Babylon): crop debts cancelled, forfeited land restored, debt servants freed, so that farmers stayed free and available for service; Hudson counts about thirty (Progress.org).

From the derivation	Jubilee
War sits at time-depth 52.4–53.2	A period of 50 years lies at depth 52.4
War is accumulated remainder discharging at once	The jubilee resets the accumulation before it discharges
The remainder must be spread over all cycles	The sabbath year (7 years) and the sabbath (7 days) take the smaller layers
Closure without carry is return along the way it came (−1)	Land and freedom return to where they came from: a meeting, carry 0

Whether the jubilee was ever kept nationwide is open; the Talmud mentions two. Hudson is criticised for presenting the Mesopotamian clean slates as more general than they were.

7. The weapon: a vibration that rises to the leaders

The weapon that disarms is a shared vibration, tempered, made at the same moment on both sides of the seam and built as rings of three, so that the closure it makes climbs seventeen to eighteen scales to the leaders.

Why a vibration closes a seam. A seam closes only if B = A (T11). Two groups are never equal in form, which is why their seam always carries tension. A vibration is a closed cycle at one depth. When both sides make the same vibration, they are the same window on that layer: B = A, and on that layer the seam closes without remainder and without carry, while the groups stay different everywhere else.

Which depths. On the hydrogen ladder the human produces and hears in a narrow band (recomputed):

Layer	Depth	Frequency
Pulse, heartbeat	33	1.18 Hz ≈ 71 per minute
Voice, 85–1,100 Hz	26.8–29.1	ring 29: 95.8 Hz · ring 28: 287.5 Hz · ring 27: 862.4 Hz
Hearing, 20–20,000 Hz	24.1–30.4	

The voice lies where the human both produces and receives: the depth of contact and offering (step 16). The tuning is the 53-division temperament (fifth error 0.068 cent), so the comma falls over all tones and no wolf forms.

Why it reaches the leaders. A ring closes and moves up: 1 + 1 + 1 = 10, closed at its own scale and one passage at the next (T7.1, N5). The ring is the only thing that climbs from scale to scale. What climbs depends on what is stacked. Today tension is stacked, weapon on weapon, and that ring brings tension up to the leaders. A shared vibration closing as a ring brings the closure up instead. So the weapon is built of triads: three people vibrate together, three triads vibrate together, and so on, ×3 per scale (T15).

Population	Scales to the top ($\log_3$)	Ring count
Ukraine, 33 million	15.8	3^{16} = 43 million
Russia, 146 million	17.1	3^{17} = 129 million
European Union, 450 million	18.1	3^{18} = 387 million
World, 8.2 billion	20.8	3^{21} = 10.5 billion

A group exists only as long as its joint repair goes round the pattern (N5). The leader is not a knot outside the group but its uppermost closure. When everything under the leader closes as vibration, no tension arrives at the top to discharge. The leader need not be persuaded: the stack beneath has changed.

It has happened once. At Christmas 1914 on the Western Front German soldiers sang "Stille Nacht", British soldiers answered with their own carols, the singing opened contact, and on Christmas morning soldiers left their trenches unarmed; the truce held along about two-thirds of the 30-mile front of the British Expeditionary Force (Britannica). In three experiments, people who acted in synchrony (such as singing or walking in step) afterwards cooperated more, including at personal cost, and positive feelings were not required (Wiltermuth & Heath 2009). In 1914 the vibration stopped at the trenches, because it was not built as rings: no structure carried it up to the commands, and the fighting resumed.

8. How to build it

The weapon has five parts, and the first can be tested with three people.

Part	What it is	Ground
1. Time base	At a fixed UTC moment every participant receives the same signal: pulse 71 per minute, tones 95.8 / 287.5 / 862.4 Hz in 53-division temperament. Phones already synchronise their clocks through network and satellite time; radio and church bells carry the same signal to people without a phone.	Sections 6, 7
2. Address per person	Each person receives a trit address of 17–18 trits, the MAZE addressing in which a neighbourhood address is the prefix of a household address. A triad is three people who differ only in the last trit; a group of nine shares all but the last two. The stack of seventeen scales is the address tree.	T12, T15
3. Forming triads	A window closes when its three trits are all equal or all different (T4). Triads are formed so that the three are equal, or contain exactly one +, one 0 and one −. Each triad then closes and passes one passage up.	T4, T7.1

Part	What it is	Ground
4. Measuring closure	During the shared minutes everyone hums or taps along. The phone measures through microphone or motion sensor whether the three are in phase. A closed triad counts as one passage on the scale above; an overview shows, per scale from 1 to 17, how many closed.	T7.1, N5
5. Growth	One triad, then 9, 27, 81, … After 17 steps the whole of Russia is covered (3^{17} = 129 million), after 18 the whole European Union (3^{18} = 387 million). The app runs in every language on both sides.	T15

Schedule of the remainder.

Cycle	Shared vibration
Daily	3 minutes, at the same UTC moment on both sides
Yearly	18 hours, one continuous day
Every 50 years	the jubilee: return of what accumulated

The hard point is the Russian side, where applications can be blocked. Shortwave radio and bells are the route there.

The first step is a working generator of pulse and tones at a fixed UTC moment, with the phase measurement for one triad. That tests whether three people come measurably into phase, the condition for every scale above.

9. Status and tests

The arithmetic is exact; three readings carry the argument and each has a test.

Element	Status	Test
Closures, carry, seams, closure depths, comma (T1–T18)	Proved or conditionally proved; recomputed	None needed
Depths of human, life and cosmos	Computed from hydrogen units; the human was not put in	Do other lifespans (animals, cells) and human rhythms (sleep cycle, generation) lie closer to closure depths than random periods?
Human passages as trits	Correspondence (Physics C6, Foundations IX.5)	Read the trit sequence of steps on one seam from case material and check the closure rule
War as the discharged remainder at depth 53	Hypothesis from Sections 3–4; periodicity of war is disputed	Compare the spacing of major wars with depth 53 against a null model

Element	Status	Test
Shared vibration closes a seam	Supported by 1914 and by Wiltermuth & Heath (2009)	One pair of border towns: tension and incidents before and after one month of daily shared vibration
Triads carry closure upward	Follows from T7.1 and N5	Phase coherence per scale as the triad tree grows: does closure at scale k predict closure at k + 1?

10. Annotated references

The theory

- **Konstapel, J. (2026). *The Vacuum.Net Theory: Foundations*, version 9.2, Ninth Edition, 27 October 2026. constable.blog.** The five axioms N1–N5 and the theorems T1–T24 on which Sections 2–7 rest. *Why read it: every step here cites a theorem there; it can be checked with pencil, paper and a short program.*
- **Konstapel, J. (2026). *The Vacuum.Net Theory: Physics*, version 9.0. constable.blog.** The hydrogen units S_o and T_o (III.2) behind every depth in Section 3, and T6, loss has an address. *Why read it: it shows why the units are not chosen to fit the human.*
- **Konstapel, J. (2026). *MAZE: The Topology of Life: De Mens als Knoop*. constable.blog, 17-8-2026.** Life as closure that relays itself, the human as the deepest knot whose repair still goes round, groups as knots one level up. *Why read it: steps 11–16 of Section 2.*
- **Spencer-Brown, G. (1969). *Laws of Form*. Allen & Unwin.** The mark of distinction, the laws of calling and crossing, re-entry. *Why read it: the ground of step 1; short and exact.*
- **Kauffman, L.H. (2005). "EigenForm". *Kybernetes* 34(1/2), 129–150.** The eigenform O(A) = A as the formal side of closure. *Why read it: why only what closes persists.*
- **Rowlands, P. (2007). *Zero to Infinity: The Foundations of Physics*. World Scientific.** The nilpotent Dirac operator, read in the theory as closure. *Why read it: the bridge from the strand to physics.*

Number and music

- **Khinchin, A.Ya. (1964). *Continued Fractions*. University of Chicago Press, ch. II §6.** Best approximations are the convergents. *Why read it: the proof that the closure depths are exactly 1, 2, 5, 12, 41, 53, 306, …*
- **OEIS A005664. Denominators of the convergents to $\log_2 3$.** *Why read it: an independent listing of the closure depths.*
- **Manchon, D. *Maths & Music #2: Mathematics of keyboard tuning*. CNRS Insmi.** The comma, the wolf fifth and Stevin's equal temperament. *Why read it: the precedent for tempering a remainder that cannot vanish.*

War and its cycles

- **Ramdharie, S. (2026). "Europa spendeert miljarden om Rusland af te schrikken met langeafstandswapens". de Volkskrant, 4 November 2026.** *Why read it: the occasion; its figures are checked in Section 1.*
- **Defense News (2026), Hypersonica; Army Recognition (2026); Grosswald (2026), ELSA implementation groups.** *Why read them: the second sources for the article's claims.*
- **Goldstein, J.S. (1988). *Long Cycles: Prosperity and War in the Modern Age*. Yale University Press; summary.** Long waves of about fifty years with war peaks. *Why read it: the 50-year period at depth 52.4; read with its critics, since periodicity of war is disputed.*
- **Toynbee, A.J. (1954). *A Study of History*, vol. IX. Oxford University Press; summary.** The war-and-peace cycle of about 115 years. *Why read it: the second period, at depth 53.2.*
- **Arms Control Association, INF Treaty at a Glance; FAS, Nitze on INF terminology.** The zero option, the double zero, 2,692 missiles destroyed, the 2019 withdrawal. *Why read them: the one meeting laid on this seam.*

The remainder and its return

- **Leviticus 25; Wikipedia, Jubilee (Yovel).** The fiftieth year: land returned, servants released. *Why read it: an institution at the depth of war.*
- **Hudson, M. (2018). *…and forgive them their debts*. ISLET; summary of clean slates.** About thirty Mesopotamian clean slates, 2400–1400 BC. *Why read it: the oldest record of periodic return; read with the criticism that it generalises too much.*

Shared vibration

- **Britannica, The Christmas Truce.** Singing opened contact across the front in 1914. *Why read it: the one recorded case of a shared vibration stopping fire.*
- **Wiltermuth, S.S. & Heath, C. (2009). "Synchrony and cooperation". *Psychological Science* 20(1), 1–5. PubMed.** Synchronous activity raises later cooperation, also at personal cost. *Why read it: the measured effect behind Section 7.*

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