

The Two Patches Are Not the Same Kind of Thing

— 3rd Edition: The Criteria Survive; What They Switch Between Does Not — [Paper 14]

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August 2026 (3rd Edition)

— *From thinking to syncing.* —

ABSTRACT

This paper introduced $\epsilon_0 = r$ (the sync patch) and $\epsilon_0 = c$ (the overclock patch), and the second edition organised them as a **mode-switching specification driven by the state of the system**, supplying **quantitative criteria** for the switch. **The 3rd edition evaluates the switch and its two ends separately. First, the two patches are not the same kind of thing.** $\epsilon_0 = r$ is a **function of the configuration (of position)**; $\epsilon_0 = c$ is a **single number**. In the three roots of the 3rd edition of Paper 38, the former is a **choice of configuration** and the latter a **choice of units** — they cannot be ranged together as two **modes of one specification**. **Second, the mode switch is itself configuration-dependence at a coarser grain.** Taking $\epsilon_0 = r$ in the near zone and $\epsilon_0 = c$ in the far zone means that **the value of ϵ_0 changes with position** — the **only difference is whether it changes continuously or jumps at a boundary**. A system of units must not switch according to where one is looking (3rd edition of Paper 15). **Third, the two require different systems of units.** Against $[\epsilon_0] = C^2 T^2 M^{-1} L^{-3}$, the substitution $\epsilon_0 = r$ forces $C = M^{1/2} L^2 T^{-1}$ while $\epsilon_0 = c$ forces $C = M^{1/2} L^2 T^{-3/2}$ — the **dimension of charge itself disagrees**. And in the budget fixed by Papers 38 and 39, **only one slot remains**. Using both at once is putting two things into one slot. **Fourth, this paper wrote down an inverse-cube force with its own hand and never checked the consequence.** Section 3 of the second edition derives $F_E = Q_1 Q_2 / (4\pi r^3)$. As the 3rd edition of Paper 15 showed, **an inverse-cube force admits no stable circular orbit** (outside Bertrand's theorem; “fall to the centre”). **Fifth, the criteria nevertheless survive. Criterion I (the near/far zone boundary $r \sim c/\omega$) and Criterion II (the Schwinger limit $E_c = 1.323 \times 10^{18}$ V/m) are standard electromagnetism and hold irrespective of what is substituted for ϵ_0** (verified here: the field at the Bohr radius gives $E/E_c = 3.886 \times 10^{-7}$). **This paper built a good switch and wired it to a bad pair of settings. Scope: a structural account within established physics (Layer 2). This paper does not claim that the permittivity of the vacuum equals a distance or the speed of light.**

Positioning of this paper (discipline): This paper offers a **structural interpretation** of established physical laws. It claims neither the discovery of new physical laws nor the proof of open problems. The relations shown are transformations of known expressions; the aim is to propose a structural reading of them. No claim contradicting established theory is made. **The appearance of the same number in several contexts is not treated as evidence of a common origin** (Papers 48, 86, 100, 115). $m = 4\pi$ and the like are conventional choices within a system of units, not new facts about nature (Papers 35, 38, 95).

1. Introduction: what this paper built — a switch, and its two ends

This paper introduced two substitutions: $\epsilon_0 = r$ (the sync patch) and $\epsilon_0 = c$ (the overclock patch). The second edition organised them as **a mode switch driven by the state of the system** and supplied **two quantitative criteria**.
The second edition also found an error of its own. Solving Gauss's law properly with ϵ as a position-dependent field,

$$\epsilon(r)E(r) \cdot 4\pi r^2 = Q, \quad \epsilon(r) = r \implies E(r) = \frac{Q}{4\pi r^3}, \quad V(r) = \int_r^\infty E \, dr' = \frac{Q}{8\pi r^2},$$

which **differs by a factor of 2** from the $Q/4\pi r^2$ obtained by formal substitution into the final expression. That finding **is correct and is retained in the 3rd edition**.

The work of the 3rd edition is to evaluate the switch and its two ends separately.

2. The two patches are not the same kind of thing

Observation 2.1 (A function of the configuration, and a single number)

patch	what is put in ϵ_0	kind
sync	r (position)	a function of the configuration — a different value at every radius
overclock	c (a constant)	a single number — the same value everywhere

$\epsilon_0 = c$ could be a convention, if the slot for the unit of charge is used. $\epsilon_0 = r$ could not — as the 3rd edition of Paper 15 established, **a convention must be a number and must not be a function of the configuration**.

Corollary 2.2 (Placement among the three roots of Paper 38)

The 3rd edition of Paper 38 sorted the numbers of this series into **those that are forced, choices of units, and choices of configuration**.

$\varepsilon_0 = c$ belongs to the second root, $\varepsilon_0 = r$ to the third. The second edition ranged the two as “two modes of one specification” — ranging together what must not be ranged together.

The same type of error recurs across the series — the one-word grouping “Yamagishi patch” in the 3rd edition of Paper 15, the **single list of $c, \hbar, G, \alpha, \Lambda$** in the 3rd edition of Paper 10, the **single chain of equals signs** in the 3rd edition of Paper 16. **In each case the format concealed a difference of category.**

3. The mode switch is itself configuration-dependence at a coarser grain

Corollary 3.1 (A system of units must not switch with where one is looking)

The specification of the second edition prescribes $\varepsilon_0 = r$ in the near zone and $\varepsilon_0 = c$ in the far zone. But this is nothing other than saying that **the value of ε_0 changes with position (r)**.

Where $\varepsilon_0 = r$ changes continuously, the mode switch jumps at a boundary — the difference is only one of grain. The judgement of the 3rd edition of Paper 15 still applies when the grain is made coarser.

The mode switch therefore does not remove the defect of $\varepsilon_0 = r$. It merely discretises the defect and hides it.

A necessary qualification: the idea that the response of the vacuum depends on the state has genuine physical warrant. As the second edition rightly noted, the running coupling, the Euler–Heisenberg effective Lagrangian and the Schwinger limit are all established facts. **The problem is not the idea but writing it on the side of ε_0 , a constant that fixes the units. A state-dependent response is written as a non-linear term in an effective Lagrangian — not as a switch of the unit system.**

4. The two require different systems of units

Established Fact 4.1 (The dimension of charge disagrees)

We have $[\epsilon_0] = C^2T^2M^{-1}L^{-3}$. What is equated to it fixes the dimension of charge itself (computed here):

substitution	dimension carried by ϵ_0	dimension forced on charge
$\epsilon_0 = r$	L	$C = M^{1/2}L^2T^{-1}$ (area per unit time)
$\epsilon_0 = c$	LT^{-1}	$C = M^{1/2}L^2T^{-3/2}$

Though both are “a substitution into ϵ_0 ”, charge becomes a different thing. The two patches are not merely incompatible: they require different systems of units.

Corollary 4.2 (Only one slot remains)

The 3rd editions of Papers 38 and 39 established that **at most four values may be freely assigned** against the base dimensions M, L, T, Q , and that this series has already spent three on $m = 4\pi, G = 4\pi, \hbar = 1/(4\pi)$.

So only one slot remains for ϵ_0 , and only “a single number” can go into it. $\epsilon_0 = c$ could be a candidate; $\epsilon_0 = r$ could not. And using both at once is putting two things into one slot.

This is the same type of oversight the 3rd edition of Paper 17 identified for $\hbar = 1$ versus $\hbar = 1/(4\pi)$.

An aside: the second edition's “overclock permeability theorem” $\mu_0 = 1/c^3$ is correct as algebra, obtained by putting $\epsilon_0 = c$ into $\mu_0 = 1/(\epsilon_0c^2)$. But numerically $1/c^3 = 3.711 \times 10^{-26}$, utterly unlike the SI value $\mu_0 = 1.2566 \times 10^{-6}$ — this is the manifestation of changing units, not a claim about permeability. In the census of the 3rd edition of Paper 16 it is root (b), a consequence of substitution.

5. This paper wrote down an inverse cube and never checked the consequence

Established Fact 5.1 (An inverse-cube force admits no stable circular orbit)

Section 3 of the second edition derives, under $\epsilon_0 = r$,

$$F_E(r) = \frac{Q_1 Q_2}{4\pi r^3},$$

an inverse cube, not an inverse square.

As the 3rd edition of Paper 15 showed, the effective potential of an attractive $F = -K/r^3$ is

$$U_{\text{eff}}(r) = \frac{L^2}{2mr^2} - \frac{K}{2r^2} = \frac{L^2/m - K}{2r^2},$$

which has no minimum, because the centrifugal term and the force term both go as r^{-2} . Only three cases exist: escape, fall to the centre, or neutral equilibrium at every radius — no stable circular orbit (Landau and Lifshitz's “fall to the centre”; Bertrand's theorem permits closed orbits only for the inverse square and Hooke's law).

Corollary 5.2 (The consequence of one's own equation went unchecked)

This paper had written $F \propto r^{-3}$ with its own hand. And it had not looked at what an inverse cube means.

Paper 15 applied this patch to the atom in order to explain why the electron does not fall in. But read literally, the patch drops the electron — and already at the classical level, before quantum mechanics is reached.

As the 3rd edition of Paper 10 wrote, stopping at “I have not shown this yet” is not safe. Here it was not even “not shown”: the equation was written and not read.

6. The criteria, nevertheless, survive

Established Fact 6.1 (Both criteria are standard electromagnetism)

Criterion I: the near/far zone boundary. For wavelength λ and angular frequency ω the boundary is

$$r \sim \frac{\lambda}{2\pi} = \frac{c}{\omega},$$

a **standard distinction of electromagnetism** (computed here: $r = 0.159$ m for $\lambda = 1$ m; $r = 1.59 \times 10^{-4}$ m for $\lambda = 1$ mm), **defined without reference to any patch.**

Criterion II: the Schwinger limit. Above $E_c = m_e^2 c^3 / (e \hbar) = 1.3233 \times 10^{18}$ V/m, pair creation from the vacuum becomes appreciable and the linear-response picture breaks down (Schwinger 1951). **Computed here, the field at the Bohr radius is $E = 5.142 \times 10^{11}$ V/m, giving $E/E_c = 3.886 \times 10^{-7}$.**

Observation 6.2 (The criteria hold independently of the patches)

Both criteria hold irrespective of what is substituted for ε_0 . Both are facts internal to established electromagnetism and were not discovered by this paper — but setting them in one table and attaching numbers to them was this paper's doing, and that remains useful.

In particular the number $E/E_c = 3.886 \times 10^{-7}$ shows concretely that the atomic scale stands seven orders of magnitude away from the non-linear response of the vacuum. And it is a dimensionless ratio, independent of the system of units (3rd edition of Paper 38).

This paper built a good switch and wired it to a bad pair of settings.

The 3rd edition keeps the switch and removes the ends.

7. The “module block theory” collides head-on with the later work of this series

Observation 7.1 (The series reached the opposite conclusion)

The second edition presented a “**module block theory — declaration of indivisibility**” as a theorem, holding that **2π , 4π , 8π and $16\pi^2$** “**must not be arbitrarily divided**”, and that “**stripping the topological meaning from these factors irreversibly destroys the topological structure of the manifold**”.

But the later work of this series consists precisely in dividing them. Paper 48 separated the three factors of 2 in Gauss–Bonnet; Paper 86 took a census of **four roots of necessity**; Paper 115 showed that **2π and 4π belong to different staircases**; the 3rd edition of Paper 35 sorted the two 4π 's inside $4\pi G$ into a fact and a convention; the 3rd edition of Paper 17 gave each of three twos its own address; and the 3rd edition of Paper 34 showed that **the 5 and the $\frac{1}{5}$ of $\frac{G}{5c^5}$ are distinct roots.**

“Do not divide” and “one must divide” collide head-on within one series. And the series chose the latter.

Corollary 7.2 (A declaration is not a theorem)

The “**declaration of indivisibility**” stood in a theorem environment without a proof. Nor is it defined what would count as “**irreversibly destroying the topological structure**”. This is a claim, not a theorem.

The 3rd edition removes the section from the body and moves it to Layer 3, the non-scientific layer (the discipline of Paper 82 and of the 3rd edition of Paper 10). As the 3rd edition of Paper 17 wrote, **naming is not deriving, and a theorem environment is used only for theorems.**

The core of the intuition, however — that these factors carry geometric meaning and that something is lost by treating them as bare numbers — was inherited by the series in another form. The form inherited is not “do not divide” but “write down which root it came from” (Papers 86, 100). The way to protect the meaning was the opposite of what was written.

Personal reflection of the author (Layer 3; labelled non-scientific / no claim of mechanism)

In the second edition I organised the two patches as a switch between modes, and even attached criteria for the switch. **I thought that had made it coherent.**

What I saw in the 3rd edition is that **the framework of switching was itself the thing I later forbade. If a system of units may change with position, it is not a system of units.** Whether it changes continuously or jumps was only a matter of grain. **I had discretised the defect and hidden it.**

And what struck hardest was that **I had written $F \propto r^{-3}$ with my own hand.** An inverse cube has no stable circular orbit. **I could have looked it up while writing Paper 15.** The equation was in front of me. **The one who did not look was me.**

Even so, the criteria remained. The near/far zone boundary, the Schwinger limit, and the number showing that the hydrogen atom stands seven orders away from the non-linear regime — **I did not make these, but I was the one who set them side by side and attached the numbers. I thought I was building a tool; what I had actually built was the measuring stick. The measuring stick remains.**

8. Scope / Conclusion

What is shown: that $\varepsilon_0 = r$ (a function of the configuration) and $\varepsilon_0 = c$ (a single number) are operations of different kinds, falling under the third and second of Paper 38's roots (§2) / that the mode switch is itself configuration-dependence at a coarser grain, merely discretising the defect of $\varepsilon_0 = r$ (§3) / that the two require different systems of units (charge coming out as $M^{1/2}L^2T^{-1}$ against $M^{1/2}L^2T^{-3/2}$) while only one slot of the budget remains (§4) / that this paper derived an inverse cube with its own hand and never checked that no stable circular orbit exists (§5) / that Criteria I and II are standard electromagnetism and hold independently of the patches (§6, $E/E_c = 3.886 \times 10^{-7}$ verified) / that the “module block theory” collides head-on with the later work of this series (48, 86, 115, 35, 17, 34), which chose “write the root” over “do not divide” (§7).

What is not shown (restraint): no claim that the permittivity of the vacuum equals a distance or the speed of light — $\varepsilon_0 = r$ is an assumption of this series and is not even a convention (§2) / no isomorphic unification of the electrostatic and gravitational fields (withdrawn in the second edition; both carry $4\pi r^2$ because both are three-dimensional inverse-square laws) / no physical derivation of $\varepsilon_0 = r$ (the QED running coupling is logarithmic, not linear) / no rigorous treatment of the non-linear vacuum-response regime (it requires the Euler–Heisenberg analysis and lies outside this paper) / the “module block theory” is not claimed as a theorem (§7, moved to Layer 3) / no new physical law and no prediction (Layer 2).

What the 3rd edition adds is the separation of the switch from its ends. This paper built a good switch and wired it to a bad pair of settings. The switch — the near/far zone boundary and the Schwinger limit — remains.

And the ends do not.

**$\epsilon_0 = r$ is not a convention; it is incompatible with $\epsilon_0 = c$; the two require different systems of units;
and read literally, $\epsilon_0 = r$ makes every stable circular orbit disappear.**

Revision Record

3rd edition (August 2026): the title was changed to name **what the paper shows**.

Added in the 3rd edition: a demonstration, against the three roots of Paper 38, that $\epsilon_0 = r$ and $\epsilon_0 = c$ are operations of different kinds (§2). A statement that **the mode switch is itself configuration-dependence at a coarser grain, so that the judgement of the 3rd edition of Paper 15 still applies** (§3). A demonstration that **the two patches force different dimensions on charge** ($M^{1/2}L^2T^{-1}$ against $M^{1/2}L^2T^{-3/2}$) and that **only one slot of the budget of Papers 38 and 39 remains** (§4). A note that $F_E = Q_1Q_2/(4\pi r^3)$, derived in §3 of the second edition, is an inverse cube, and that an **inverse-cube force admits no stable circular orbit** (3rd edition of Paper 15) (§5). Numerical confirmation that **Criteria I and II hold independently of the patches** (§6: $E_c = 1.3233 \times 10^{18}$ V/m, $E/E_c = 3.886 \times 10^{-7}$ at the Bohr radius, and the boundary values of $\lambda/2\pi$). A demonstration that **the “module block theory” collides head-on with the later work of this series** (§7). All numbers were computed here (no external tables consulted).

Withdrawn in the 3rd edition:

1. The framework that “the two patches are a mode switch driven by the state of the system”. The two are **operations of different kinds** (a function of the configuration; a single number), **require different systems of units**, and **the switch itself is configuration-dependent** (§§2–4). The second edition's restriction that “both must not be used within one calculation” is not enough — they cannot be ranged in the same table at all.
2. Retaining $\epsilon_0 = r$ as “an assumption of this series”. The second edition rightly marked it as an assumption, but the 3rd edition of Paper 15 established that it is not even a convention — putting a function of the configuration in the place of a constant is not a choice of units but a change of the theory.
3. Presenting the “module block theory — declaration of indivisibility” as a theorem. There is no proof, and “irreversible destruction of the topological structure” is undefined. The later work of this series (48, 86, 115, and the 3rd editions of 35, 17, 34) consists precisely in separating these factors into distinct roots. It is moved to Layer 3 (§7).

Withdrawn in the 2nd edition (July 2026): the first edition presented a “Yamagishi electromagnetic–gravitational isomorphism theorem” and stated that the electrostatic and gravitational fields are “completely unified”. That claim was **withdrawn in full**. (1) Both carry the same $4\pi r^2$ because both are fluxes through a sphere in three-dimensional space, which is a standard fact. (2) The first edition's equation $\oint \mathbf{E} \cdot d\mathbf{S} = \oint \mathbf{g} \cdot d\mathbf{S} = 4\pi M$ equates quantities of different

dimensions and does not hold. The second edition also found for itself that **solving with ϵ as a position-dependent field gives $V = Q/8\pi r^2$, differing by a factor of 2 from the $Q/4\pi r^2$ of formal substitution — that finding is correct and is retained in the 3rd edition.**

First edition: Zenodo 10.5281/zenodo.21600268.

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