SITE PAPER · NOT ON ZENODO

Components of the Nonsymmetric Field

What each index symmetry was asked to carry,
and which primary papers own the equations

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Abstract. Shields 2026b argues that Einstein's unification is a type of completion and not a quantization of the 1915 metric. This paper does not repeat that argument. It writes the objects of the theory he actually varied from 1945 to 1955 [6, 8], names the earlier affine and tetrad attempts [2, 3, 4], and says what the symmetric and antisymmetric parts were supposed to equal. The equations did not produce a particle, a charge quantum, or an emission time. That negative result is read off the papers. It is not a restatement of the History chapter, which only places the attempt, and it is not a proposal to solve these equations for a nucleus.

1. Earlier than the nonsymmetric tensor

Eddington's affine theory [1] takes a connection as the primary variable and builds a metric from the Ricci tensor of that connection. Einstein's 1925 note [2] follows that route and tries to let one connection supply both gravitation and electromagnetism. The 1928 distant-parallelism notes [3] use a tetrad h^s_μ. The curvature of the connection can vanish while the torsion does not, and the torsion is the candidate electromagnetic field. With Mayer [4] the tetrad theory is rewritten for a five-dimensional-looking set of equations that is still four-dimensional in its interpretation. None of [2, 3, 4] contains a solution that is a charged particle with the electron's e/m, and none contains a frequency $h\nu$. They are failed attempts of a stated kind. They are cited so the 1945 tensor is not treated as the only equation he wrote.

Schrödinger's later affine papers [5] vary a single connection and also fail to recover a discrete charge. They are the nearest independent primary attempt, not a commentary on Einstein, and not a result this program adopts.

2. The split

From [6] and Appendix II of [8], the fundamental tensor is not symmetric. Decompose it by the usual projectors,

$$g_{\mu\nu} = g_{(\mu\nu)} + g_{[\mu\nu]},$$

$$g_{(\mu\nu)} = \frac{1}{2}\big(g_{\mu\nu} + g_{\nu\mu}\big), \quad g_{[\mu\nu]} = \frac{1}{2}\big(g_{\mu\nu} - g_{\nu\mu}\big).$$

The theory asks $g_{(\mu\nu)}$ to do the work of the 1915 metric, and $g_{[\mu\nu]}$ to do the work of the electromagnetic field tensor. That is an identification, stated by Einstein, not a theorem that the antisymmetric part equals $F_{\mu\nu}$ of Maxwell's theory. No solution in [6] or [8] demonstrates the equality in the laboratory.

The connection $\Gamma^\sigma_{\mu\nu}$ is not symmetric either. Compatibility, with his index order, is

$$\partial_\lambda g_{\mu\nu} - g_{\sigma\nu}\Gamma^\sigma_{\mu\lambda} - g_{\mu\sigma}\Gamma^\sigma_{\lambda\nu} = 0.$$

He adds the condition that the torsion vector vanishes, so that the trace $\Gamma^\sigma_{\mu\sigma} - \Gamma^\sigma_{\sigma\mu}$ is zero. The curvature $R_{\mu\nu}$ built from Γ is set to zero in the source-free theory. Its antisymmetric part is required to have a vanishing cyclic sum, the slot Maxwell's homogeneous pair would occupy if the identification were true. The action he varies is

$$S = \int g^{\mu\nu} R_{\mu\nu}\, d^4x.$$

$g^{\mu\nu}$ here is the inverse density of the nonsymmetric tensor, as in [8], not the symmetric inverse of 1915. Variation in g and in Γ is what produces the system just stated. There is not a separate Einstein equation sitting beside a separate Maxwell equation.

3. What the components do not yield

A symmetric vacuum equation $R_{\mu\nu} = 0$ can be Schwarzschild's solution. Adding $g_{[\mu\nu]}$ was supposed to put charge into that family. The papers do not exhibit a regular solution whose asymptotic field is a Coulomb field with a quantized charge, and they do not exhibit a mass ratio. There is no spectrum, because there is no h in the action. There is no first-event time, because nothing in S crosses a threshold. Those are absences in the equations, not objections imported from 2026b.

2026b may still say that the type — one field, not two pasted theories — is the completion he would have recognized. This paper's job ends before that sentence. It credits the equations to [1–8] and stops where those equations stop.

4. References

1. A. S. Eddington, *The Mathematical Theory of Relativity* (Cambridge, 1923). The affine starting point Einstein uses in 1925.
2. A. Einstein, "Einheitliche Feldtheorie von Gravitation und Elektrizität," *Sitzungsberichte der Preußischen Akademie der Wissenschaften*, 414–419 (1925).
3. A. Einstein, "Riemann-Geometrie mit Aufrechterhaltung des Begriffes des Fernparallelismus," *Sitzungsberichte der Preußischen Akademie der Wissenschaften*, 217–221 (1928).
4. A. Einstein and W. Mayer, "Einheitliche Theorie von Gravitation und Elektrizität," *Sitzungsberichte der Preußischen Akademie der Wissenschaften*, 541–557 (1931).
5. E. Schrödinger, "The final affine field laws," *Proceedings of the Royal Irish Academy* A 51, 163–171 (1947); *Space-Time Structure* (Cambridge, 1950).
6. A. Einstein and E. G. Straus, "A generalization of the relativistic theory of gravitation," *Annals of Mathematics* 46, 578–584 (1945).
7. A. Einstein, "A generalized theory of gravitation," *Reviews of Modern Physics* 20, 35–39 (1948).
8. A. Einstein, *The Meaning of Relativity*, 5th ed., Appendix II, "Relativistic theory of the non-symmetric field" (Princeton, 1955).
9. W. Shields, "Completion, Not Unification," Zenodo (2026b). Cited only to mark the argument this paper does not repeat.