

UNITED WISDOM

Why Refutation Does Not Always Destroy a Theory

World and Consciousness

Andrey Zarinsh & Maria Evilkut

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@andrey.zarinsh @ilkutki

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Epigraph

> *Good sense is the judge.*

Pierre Duhem, II.VI.X, opening of the heading “Le bon sens est juge des hypothèses qui doivent être abandonnées”. United Wisdom’s translation of its first five French words; concerns choosing hypotheses to revise, not substituting personal obviousness for knowledge.

What this article is about

An expected result did not occur. It can seem sufficient to cross out the theory that promised it. Sometimes that conclusion is justified. Yet other conditions may connect a supposition to an observation: the chosen subject, an instrument’s condition, the recording method, and additional assumptions. This article asks why disagreement needs a precise address rather than only the dramatic word “refuted.” Duhem and Poincaré discuss this problem in historical philosophy of physics; Peirce adds a question about attachment to opinion. Their positions form no single contemporary scientific procedure. We distinguish failed prediction, faulty checking, changed scope, and protection at any price. Timetable, plant, and thermometer examples are invented. No laboratory instructions or permission to make every theory invulnerable are offered. A short exercise records what failed, what remains open, and which next action has independent grounds.

I. Name what was tested before crossing it out

Imagine an ordinary expectation: a timetable says a door should be open, but a visitor finds it closed. That observation matters. It does not yet identify an inaccurate timetable, mistaken address, exceptional day, or incorrectly set clock. Listed possibilities are not equally credible merely because they can be named; each needs grounds. Begin with the narrow result: this door was closed under these circumstances. That does not diminish failure. It retains the subject actually available for examination instead of requiring one scene to answer for all knowledge about an organisation, a person, or the world.

In Part II, Chapter VI, section II of La Théorie physique, Duhem argues that a physical experiment tests an ensemble of premises. Failure does not by itself identify the mistaken member. His subject is theoretically interpreted physical experiment, not every human

@andrey.zarinsh @ilkutki

disagreement. The everyday scene here is a limited editorial analogy. It makes the route from supposition to expected event visible. Duhem’s strong historical claim must not become a prohibition on checking an individual practical detail. Time, address, or an active record can be examined separately where a suitable method supplies the needed information.

“Theory” also needs proportion. In science it can name an elaborate system; conversation may use it for a guess about delay or another person’s intention. An everyday supposition should not acquire scientific status merely to protect it. Nor should a complex research system be expected to undergo the same check as a meeting-time entry. These scenes reveal distinctions rather than replacing specialist work. Ask which claim was made, what was expected from it, and which conditions connected it to the result. A conclusion’s scope should fit that account instead of the prestige or casualness of the label.

Precision retains the possibility of genuine rejection. If someone claimed a particular door was open and reliable observation establishes otherwise at that time, the report cannot remain unchanged because complex theories exist. Uncertainty about why it closed does not cancel the established fact. Separate “the report is incorrect” from “its cause is already known.” The former may be available first. A complete explanation need not precede correction of a specific error. Careful reasoning avoids turning that correction into certainty about further questions that remain unchecked, while allowing the definite correction already supported by observation.

II. Distinguish the proposal from connecting conditions

Expectations often contain unnoticed additions. Someone thinks a position suits a plant and expects growth. That expectation also assumes the same plant is involved, conditions are described correctly, relevant time has passed, and a sign of growth is understood. No cultivation advice follows: the invented example establishes no botanical rule. It separates a proposal from its checking conditions. Unchanged leaves provide a reason to investigate, not an automatic answer to every question. The owner’s character, strength of desire, or moral quality of care cannot become the cause without independent grounds adequate to such a claim.

Naming an additional condition does not make it a convenient excuse. A proposed recording error needs investigation; a timing doubt needs its own grounds. A list of possible obstacles can assist inquiry or conceal it beneath endless talk. Select a concrete question whose answer could change understanding. Examination must respect access and authority. Nobody’s property, consent, or safety should be violated to prove a point. Sometimes the appropriate step is requesting information or acknowledging that the question cannot independently be settled under current conditions. The inability to proceed is information about limits, not proof that the original explanation prevailed.

A checked condition differs from a familiar one. “The instrument always worked” may describe earlier use without confirming relevant accuracy today. “Nobody complained before” cannot establish that a new participant encounters no difficulty. This does not require perpetual suspicion about everything. Identify the grounds for trusting an important link. An existing check may suffice, or altered circumstances may require fresh information. No technical instrument-control procedure is supplied here. The boundary is narrower: confidence in a familiar object should not quietly become confirmation of the particular condition needed for today’s conclusion. Appropriate evidence depends on what is actually being inferred.

To avoid dissolving a question into possibilities, write distinct statements: this result was expected; this information was used; this observation was obtained; the discrepancy’s cause remains unknown. Such an account calculates no probability and replaces no scientific protocol. It makes discussion intelligible. Participants can agree on observation, disagree on explanation, and assess next steps differently without treating everything as one undifferentiated conflict. A proposed correction then has an identifiable target. If it changes neither expectation nor available examination, ask what work it performs besides retaining a preferred answer. That question concerns the proposal’s role rather than a diagnosis of its proposer.

III. A correction needs grounds of its own

Suppose a specific error emerges after the closed-door visit: the timetable belonged to another branch. This new information changes the explanation, but does not make the original report about the visited place true. Correct the address-related inference and examine the appropriate record separately. A limited correction identifies an error, explains its significance, and leaves a checkable remainder. “Something exceptional probably happened” functions differently if it follows every failure without requiring support. An exception is possible; this particular exception has not been established. Keeping that distinction protects inquiry and the person deciding on the report’s basis.

In Science and Hypothesis IX, Poincaré warns against excessive multiplication of hypotheses: a failed combined test makes the premise needing revision difficult to identify. He also distinguishes kinds of hypotheses and requires testing actual generalisations. This is historical mathematical-physics reasoning, not a ready procedure for today’s laboratory. A useful question concerns the cost of adding a supposition: does it clarify the situation or merely enlarge the unknowns? Explanatory convenience cannot confirm it. An elegantly named possibility remains a possibility until its role and grounds have received separate attention appropriate to the proposed explanation.

A correction can be substantive even when it follows failure. Its timing alone proves no dishonesty. Ask what supports it and which distinctions it now makes examinable. Established

differences in conditions should change expectations specifically. An explanation that continually changes its subject so every outcome counts as success makes the original test obscure. “No visible growth means inward growth” does not answer an observation about a plant when visible growth was predicted. It may introduce a metaphor, but cannot confirm the earlier claim. Replacing an examinable subject with a more convenient one should not preserve the original declaration of proof.

Narrowing scope has a cost too. An earlier general claim may prove overextended, while a narrower one remains supported. Name that real change. Do not pretend a limitation was always obvious if listeners received a broader promise. People who acted on the report need an understandable correction. No legal notification procedure is established here. The concern is conversational responsibility: a new boundary is useful when it helps others revise expectations, rather than only helping an author appear invariably right. Retaining part of an idea is compatible with acknowledging the precise point where its earlier scope exceeded its grounds.

IV. One explanation’s failure does not prove another

Arguments often present only two explanations. When one fails, the other can seem to win completely. Yet proposed alternatives need not exhaust possibilities. One person attributes a closed door to timing, another to an absent employee. Checking the clock may defeat the first explanation without establishing the second. Was the employee absent, and did that cause closure? A modest logical distinction matters: eliminating a cause and establishing a cause are different results. Remaining uncertainty should not be filled by the nearest convenient account merely because it has been discussed longer than other possibilities or has a more persuasive advocate.

In VI.III, Duhem challenges an imagined physical experiment that establishes final truth between two supposedly exhaustive hypotheses. His reasoning questions assurance that every conceivable possibility has been listed. This does not make experiments useless. Their next task remains substantive, and historical optical models are not adopted as current accounts of light. The everyday analogy asks whether the proposed pair actually closes the question. Sometimes circumstances and rules make a choice determinate; sometimes further alternatives exist. Invoking Duhem cannot automatically dissolve every clear practical choice, just as saying “two accounts” cannot automatically make an explanatory list complete.

A third possibility does not make all possibilities equal. To consider another explanation seriously, describe its subject and available grounds. Otherwise discussion becomes endless “what if” without helping anyone. An answerable question differs from an imagined possibility unrelated to the decision. Available knowledge may suffice for a safe ordinary action despite incomplete explanation. With significant consequences, the appropriate examination depends

on the subject and relevant expertise, not this article. Uncertainty can require a pause, but creates no general obligation to continue every action. People retain permission to decline unsuitable risks while explanatory questions remain open.

Disagreement about explanation also differs from disagreement about an event. A door's closure can be established while its cause remains unknown. A promise of access can be rejected while the future arrangement remains open. Naming these results separately leaves neither everything obscure nor established knowledge suspended until a final explanation arrives. Someone needing a decision now may benefit more from this report than from a dramatic story of a theory's complete collapse or rescue. They can see what remains usable, what requires correction, and where confidence cannot appropriately increase without further grounds suited to the unresolved part.

V. Scope belongs to the claim

A claim about an explanation's usefulness needs conditions. An invented timetable valid for an ordinary day need not describe a day with an announced change. Yet normality cannot be invented afterwards so every inconvenient day becomes exceptional. Establish the actual boundary and what the listener was told. A clarification may retain something useful while acknowledging earlier error. Several results can coexist: closure remains established, a general promise is corrected, and the proposed exception requires its own grounds. This addresses failure more substantively than choosing between destroying all knowledge and completely vindicating whoever made the claim.

Examining scope differs from reducing ambition merely for convenience. A narrower claim should remain informative. "It is true wherever it is true" helps nobody choose conditions of action. Name a concrete difference: the record concerns another place, a particular sign was absent, or grounds for a new inference remain unavailable. No general criterion automatically decides every scientific theory's fate here. The requirement concerns an intelligible report. A recipient should see whether the subject changed, which knowledge remains, and which limit affects their choice. Clarification serves inquiry when it reduces uncertainty rather than only reducing opportunities to challenge an author.

Earlier success also deserves an accurate account. Agreement between expectation and observation confirms a particular testing outcome, not automatically every accompanying premise. In the everyday scene, an open door cannot establish flawless clocks, a correct causal account, and reliable promises for all future visits. Some differences may not have appeared in that situation. This requires no suspicion of every success. Use the supported part within its grounds while leaving broader questions open. Success deserves recognition without becoming immunity; failure deserves attention without becoming a verdict on everything that previously helped understanding or action under other conditions.

Significantly changed conditions do not automatically inherit earlier suitability. Respect for achievement can coexist with checking a new application. That is not ingratitude toward past work; it retains results' connection with actual conditions. Separate history from the current expectation: this worked then; we want to use it here; this transition needs particular information. Missing information cannot be supplied solely by the prestige of earlier success. Equally, an unconfirmed new application does not automatically make the earlier result imaginary. Different times and subjects should not answer for one another without an intelligible connection supported by relevant grounds.

VI. Continue inquiry or preserve at any price

Failure allows different reasonable steps: correct a specific record, gather missing information, or stop an application whose significant consequences lack sufficient grounds. Continuing inquiry does not require continuing an action affecting someone else. A question may remain open while today's practical decision changes. This matters where another person must consent to participation or bear the cost of waiting. Uncertainty supplies no authority over their time, access, or safety. Nor does it oblige the inquirer to promise a prompt answer without knowing how relevant confirmation could be obtained. The open question and the current commitment require distinct accounts.

In VI.X, Duhem considers opposite risks: changing a system's foundations prematurely and propping it up indefinitely through accumulated corrections. His "good sense" is no strict algorithm; disagreement and impartiality retain roles. This historical philosophical position gives no permission to replace relevant evidence with personal obviousness. A useful editorial question concerns direction: does the next act help distinguish explanations, or merely prolong habitual defence? Its answer needs a concrete subject. A small correction may suffice. Alternatively, preserving a former arrangement may require increasingly complicated promises that themselves lack independent confirmation and do not clarify what happens next.

No universal failure count can be assigned after which every idea must disappear. Questions differ in methods and consequences. The absence of such a count nevertheless imposes no endless duty to wait. Set a sufficient boundary for particular participation: this option will not yet be used; specified information is needed; further work is acceptable only within this scope. That decision establishes no theory's final truth. It identifies action limits under available knowledge. A person declining to wait should not be judged ignorant or insufficiently faithful. The explanatory question can remain open while participation remains voluntary and intelligible to those affected.

Retain a history of significant changes to see what was tested and altered afterwards, rather than accumulating every spoken word. Without it, a revised account may quietly replace its predecessor while participants discuss different subjects. A brief record can suffice: this was

expected, that was observed, this boundary is now proposed, and these are its current grounds. Further disagreement should address the new version specifically. History supplies no right to keep condemning an author for a corrected error. It prevents each new formulation from being presented as the same unchanged claim and makes the cost of corrections visible to participants.

VII. A belief need not own its holder

Acknowledging error can affect pride, habit, and relationships. Someone invested work in an explanation and does not want it wasted. Understandable feelings cannot replace information about its subject. Distinguish the work's value, a particular claim's suitability, and the author's dignity. One mistaken inference does not make a life meaningless; human dignity does not make an inference correct. This boundary allows recognition without compulsory preservation, and correction without humiliation. No psychological technique is supplied. It is a conversational condition under which an inquiry about knowledge need not become a coercive verdict on somebody's character or entire life.

In Fixation of Belief III–IV, Peirce distinguishes doubt, belief, and inquiry's ending once opinion is settled. Settlement does not by itself guarantee truth in his philosophical account. Historical language about nervous states is not adopted as contemporary clinical assessment. The comparison concerns a limited question: do we want to understand a discrepancy, or mainly regain a comfortable sense of completion? Do not answer for somebody else. Ask for the next step's grounds and allow them to identify their limit. Calmness, irritation, or confident delivery supplies no independent proof that their explanation has survived examination appropriate to its claim.

Impartiality need not mean lack of interest. Care about a result can coexist with revising an explanation. A preferred account can be acknowledged alongside an unexamined alternative. This requires intelligible speech rather than a performance of complete indifference. When somebody's experience matters, hear the specific report instead of replacing it with a guess about defensiveness. Information that conflicts with expectations can be considered without demanding immediate adoption of another worldview. Participants retain different grounds and boundaries. Examining a claim concerns its subject; it does not require spiritual agreement or emotional closeness between those discussing it.

People may end an unsuitable argument. Humiliation, endless justification, or forced assent permits limits to participation. Such a limit proves neither account true; it identifies a human conversational boundary. Record the specific disagreement and choose another available way to clarify it if clarification is actually needed. Existing information may suffice for a decision without a complete argument, or the question may remain unsettled. Neither outcome authorises naming the departing participant as the cause of a theory's failure. Explaining an

event and relating to a person remain different subjects, even when the explanation’s author finds that distinction uncomfortable.

VIII. Retain knowledge without retaining immunity

At the end, identify separate results. What was observed? Which original conclusion needs correction? What remains supported? Which further questions remain open? This account promises no final clarity, but makes the current state usable in conversation. Narrow knowledge can be reported narrowly; a specific established error can be corrected directly. An unknown cause need not be filled by a character judgement or the most attractive explanation. Distinct results allow something useful to remain without requiring it to explain everything. Unsupported claims can be withdrawn without denying all previous work or pretending that nothing of value was learned.

An open question is not an empty outcome. Discovering an inaccurate record, unsuitable conditions, or missing information changes understanding. Unsupported promises can stop, and a more suitable subject can guide the next action. Yet disappointment does not automatically become a valuable lesson. Somebody may acknowledge lost time or opportunity. Respecting that cost requires no declaration of success. State the result and limits honestly. Further inquiry needs fresh grounds and available conditions, not an obligation to give every failure an attractive meaning in order to preserve its author’s confidence. Learning and loss can both be present without being renamed one another.

A retained idea should remain open to clarification. If its revised form works only because questions are forbidden, the relationship to knowledge has changed: obedience is being defended rather than the described conclusion. This matters where one participant controls another’s conditions. Complex-theory language creates no consent, justifies no concealed cost, and confirms no promised result. Explain a position, acknowledge its boundary, and hear refusal. Decisions affecting health, law, finances, or safety need suitable knowledge about the actual situation. General philosophical discussion cannot authorise continuation of an earlier arrangement merely because its explanation has not been finally defeated.

Duhem, Poincaré, and Peirce offer different historical perspectives; the invented everyday scenes retain their modest scope. Their comparison does not show that refutation never occurs. It sharpens a question: what failed the examination, and what supports the next inference? Rejection, correction, or separate investigation of conditions may follow. Each can be honest when named directly and kept distinct from authority over another person. A theory merits attention through what it helps understand and examine. It needs no immunity, and a person need not destroy all previous knowledge in order to acknowledge a particular significant error and reconsider its consequences.

What this means in practice

Choose an ordinary expectation that disagreed with observation and can be discussed without risk or intrusion. Start with the subject rather than a verdict on somebody. Record what was expected, what was noticed, and which particular claim now needs attention.

Identify connecting conditions: the information’s origin, its subject, and considered limits. Distinguish checked, familiar, and unknown. A list of possible causes is not a list of established causes; naming them gives them no equal credibility.

For a proposed correction, ask what supports it and what it clarifies. Name a changed subject or scope openly. Correct an established specific error even if the event’s complete explanation remains unavailable.

Choose one manageable next step or boundary: check a record, request information, decline an application, or retain an open question. Somebody’s agreement must not become a duty to help demonstrate that you were right.

Finish briefly: “This was not supported; this remains established; this is open; this is the next step proposed.” The exercise clarifies a conversation; it is no demonstrated scientific-testing method, psychological intervention, or professional decision procedure.

Key quotation

> *it is important not to multiply hypotheses beyond measure*

Henri Poincaré, Science and Hypothesis IX. Exact contiguous clause from George Bruce Halsted’s 1913 translation, before a comma; kinds of hypotheses and testing retain their surrounding context.

Connections between traditions

Question	Primary basis	Distinction and limit
What is tested together?	Duhem, II.VI.II [1]	Physical experimental premises form an ensemble; everyday scenes are separate editorial analogies.
Do two accounts exhaust the question?	Duhem, II.VI.III [1]	Historical final-alternative argument, not prohibition of clear practical checks.
What does an added hypothesis do?	Poincaré, IX [2]	Different kinds and multiplication costs; no contemporary procedure derived from historical reasoning.
When does continuation become protection at any price?	Duhem, II.VI.X [1]	Good sense permits disagreement; it replaces neither relevant expertise nor independent grounds.
Is opinion settled or its subject supported?	Peirce, III–IV [3]	Settlement differs from truth; emotional response is neither diagnosis nor proof.

Limited philosophical questions are compared. Historical authors become no unified doctrine; the exercise remains a voluntary contemporary proposal.

Primary sources

1. **Pierre Duhem, La Théorie physique: son objet et sa structure**, Chevalier & Rivière, 1906. Part II, chapter VI, II, III, and X. French original in historical transcription. Experimental ensembles, final physical alternatives, and good sense have different roles; historical models and absolute formulations become no contemporary norms.

2. **Henri Poincaré, Science and Hypothesis**, 1902; chapter IX. George Bruce Halsted's English translation, The Foundations of Science, The Science Press, 1913. Roles and kinds of hypotheses; the key clause comes from the paragraph on excessive multiplication. Historical translation and physical examples replace no current specialist knowledge.

3. **Charles Sanders Peirce, The Fixation of Belief**, 1877. English original, III–IV and V's opening. Philosophical distinctions between doubt, belief, and inquiry's ending; historical nervous-state language supplies no clinical assessment.

Short Russian renderings and the English Duhem epigraph are United Wisdom's translations of the specified texts. Everyday scenes and the voluntary exercise are original applications.

Actual reading scope: Duhem, selected paragraphs of II (opening, Wiener/Neumann and Foucault), complete III and X; not all of II. Poincaré, the limited discussion in IX of the role, kinds, and multiplication of hypotheses with adjoining context; not the whole chapter. Peirce, III–IV and the opening of V, reused after those passages were fully read in this task; not the entire series.

Tags

refutation, theory, hypothesis, examination, knowledge, observation, result, condition, premise, error, cause, correction, limit, application, prediction, explanation, alternative, uncertainty, inquiry, decision, consent, responsibility, history, dignity, belief, impartiality, Duhem, Poincaré, Peirce, philosophy

About the authors

Andrey Zarinsh is the author and founder of United Wisdom. He explores inner transformation, the unity of traditions, intercultural dialogue, and contemporary spiritual discipline. Instagram: @andrey.zarinsh.

Maria Evilkut is a co-author of United Wisdom. Alongside her research, she seeks to test these ideas in practice and observe how principles of unity and mutual understanding work in real life between people and cultures. Instagram: @ilkutki.