

PHILOSOPHICAL IN CONFRONTING REJECTION

Language Confusion in the Correspondence Between Editor and Author

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Philosophy is a battle against the bewitchment of our intelligence by means of our language.

Ludwig Wittgenstein

On occasions, philosophy will become a legitimate scientific tool....

Thomas Kuhn

...philosophy is often...finding a suitable context in which to say the obvious.

Iris Murdoch

Experimentation has a life of its own.

Ian Hacking

Introduction.

The letter—email—arrives, always Friday afternoon, from the high impact factor journal of your (first) choice:

Your manuscript

- is not novel
- fails to demonstrate a mechanism
- is only descriptive
- does not suit our general audience
- lacks an animal model
- is not foundational

-is not complete

-lacks rigor

And so on. Comments maddening, saddening, confusing....

We aim to dispel the confusion, and perhaps also the distress, with a particular philosophical approach, derived from arguably the greatest philosopher of the 20th century, Ludwig Wittgenstein, but perhaps not a familiar name to most readers of this essay (Box 1). Our stance will be analysis of language, beyond tone, semantics, and rhetoric, to gain insight from a small if painful notification. We use Wittgenstein's notion of a "language game" as a starting point. "Game" here does not carry the light connotation of "word play", the politics of "gaming the system," or the calculation of game theory. Rather, Wittgenstein's seminal contribution was to question the meaning of "meaning" itself (McGinn 1984)—to conceive of language embedded in human activity, and therefore not accessory but necessary--fundamental to our behavior, thinking, and view of the world.

Confronting rejection, the mature scientist stands stoical (a quite different philosophical posture) before her trainees, moods ranging from demoralized to despair. They had not anticipated such negativity! A brutal dismissal of their absorbing results! So much effort in time and funds wasted! What had they done wrong? Were they in the right laboratory? In the right field? The right career? The head of the laboratory team, after himself finding inner tranquility, reassures his coauthors: it's the system, it's only one paper, the editor is ignorant, there is no large significance to a trivial rejection notice. But even if the rejection is overcome by persuasion, pleas, and arguments to the editor, the manuscript extensively revised, new experiments added, "novel" interpretations reluctantly included to achieve, finally, an acceptance, the cost is high:

months of fellowship time, highly skilled labor, animals, reagents. The revised manuscript may be improved cosmetically but be no better at conveying the results or explaining the phenomenon that first motivated the scientific team.

The familiarity of this rejection drama makes it seem quite normal, established by custom, inevitable. We aim to challenge this cast of mind--an unexamined commitment to the familiar, because so banal; thoughtfulness in consideration of the editor's letter may be extended to what appears as the "normal" state of scientific culture (Cahill 2018).

There is a dissonance between the life of the laboratory and clinical research, the incentives and rewards of scientific work itself, and a separate, seemingly fantastical world of scientific publishing: a dissonance between the results and the paper. A clue to the working scientist's confusion: it is highly unlikely that any of the usual terms of rejection would be much used by the research team. And the replacement of the deep pleasures of a striking laboratory observation or an experimental discovery, a marked effect or remarkable outcome, with the almost physiologic relief of tension with notice of the manuscript's acceptance. The divide between scientific work—here biomedical research in the laboratory or clinic—and scientific publishing, by the best "impactful" journals, is an accepted part of working scientists' lives. But hidden in this ordeal are unexamined activities, discoverable through language, which may be harmful, to the aspiring investigator, to a field of research, and for the presentation of scientific data to colleagues, funders and the public. Of wider import, authors' discontent is a personal component of the roiling "crisis" in scientific publishing, alongside issues of fraud and

reproducibility, sloppy statistics and absent negative studies, open access and “pay-to-publish” practices and journals, the difficulty of achieving meaningful peer review and widespread distrust in science (Economist 2017; DeWit H. 2018; Somers 2018; Ioannidis J.P.A. 2023; Ioannidis 2005; Kolata 2017; Young 2008; Gu 2018; Chawla 2020; Flier 2023).

Choosing a Philosophical Stance

Our attitude draws on Wittgenstein’s writings (Wittgenstein 1958, 1969, 1977, 1981, 2009). Wittgenstein’s published output in his lifetime was meager--70 odd pages of the *Tractatus Logico-Philosophicus*!—but his followers, devotees and critics, have compensated: with the posthumous publication of his masterpiece, *Philosophical Investigation* along with numerous typescripts, manuscripts, notebooks, dictations, and lecture notes; and in innumerable books, research papers, encyclopedia articles, blog postings, and popular collections of his aphorisms. Wittgenstein was and remains an almost mythical figure of controversy, even (especially) within departments of philosophy: adored by some as “St. Ludwig,” whose work is of fundamental importance to modern philosophic thinking and still incompletely understood and appreciated, and denounced by others as a Mephistopheles, nagging and undermining academic philosophy, or worse Siva, destroyer of philosophy. The range of subjects in the humanities that his thinking, centered on language, has impacted is broad (Hacking 2002; Rorty 2009; Cavell 1979; Kripke 1984; Goodman 1978): aesthetics, ethics, religion, and psychology, quantum mechanics, artificial intelligence, and more (Hacking 2002; Rorty 2009; Cavell 1979; Kripke 1984; Goodman 1978)). In culture, Wittgensteinian ideas abound in literature (a small selection: Gertrude Stein, Iris Murdoch, David Foster Wallace, Thomas Bernhard, Ingeborg Bachman, Cormac McCarthy (Wallace 2010; Murdoch 1988), music (John Cage, Bruce Nauman), art and art criticism (Jasper Johns, Arthur Danto), film (Derek Jarman, Jim Jarmusch, the Coen

Brothers[!]). Convenient for enthusiasts, a variety of Wittgenstein tee shirts and coffee mug merchandise is available on the internet.

Wittgenstein claimed a new method of doing philosophy, and of eliminating its “nonsense”. First, adopting a “therapeutic” attitude to “cure” confusion; second, questioning the obvious, least likely to be truly understood because so familiar; and third, starting from language as the most accessible entry into an enormous range of human activities. We wish to employ Wittgenstein’s distinctive and appealing approaches: procedures that entail an unacademic, conversational and questioning style and a vocabulary of neologisms to express novel relationships, often beginning with seemingly trivial queries: What is a “game?”; How do I know I am in pain, or that you are in pain, and what is the difference in that “knowing?” Isn’t it peculiar how we employ color names? What do we *mean*? Wittgenstein demanded of his students, and of his readers, a willingness to set aside customary, diurnal habits of thought, in an effort to think themselves, and ourselves, through to clarity: examples and comparisons illuminate, and there may be a variety of therapeutic approaches. His goal, and ours, is not to provide a catalogue of simplistic solutions(Klagge 2021).

From Picture Theory to Language Game

The early 20th century was a time of scientific foment: relativity in physics, genetics in biology, synthetic chemistry, all pointed to a future dominated by scientific ways of thinking (Janik 1996). “Early Wittgenstein,” in and of this world, rejected such technological approaches, in his opposition to “scientism,” stressing the profound differences between scientific and philosophic problems and the very propositions that underlie them. In the *Tractatus* he expounded a radical

theory of language, meaning, and reality. The “picture theory” of the *Tractatus* was highly reductionist: language consisted of representations of entities in the world and their arrangements. Propositions of ordinary language were to be analyzed into logical combinations of basic, elementary propositions made up of names for simple, unanalyzable objects. Among the consequences of this formulation were that talk of ethics and aesthetics, as examples, were “nonsense”: incapable of forming propositions and therefore outside the limits of language—which coincide with the limits of human thought. In contrast to the natural sciences, philosophy could not discover new facts, but it could confront the confusions by which language confounds our thinking.

The *Tractatus* shattered Anglo-Saxon philosophy, but the “later Wittgenstein” came to doubt his own conclusions. The *Tractatus*’ final admonition to “throw away the ladder” of its arguments was extended, to dismiss as incorrect his own implicit attempt at an anti-theoretical theory of language. The *Tractatus* broke down in its account of atomic facts and logical relationships. Anecdotes are illustrative. His friend, the mathematician Frank Ramsey, asked how an atomic proposition helped to understand ordinary speech? The economist Piero Sraffa proffered a rude Neapolitan gesture for logical dissection. Tractarian vertical analysis of ordinary propositions down to a hypothesized level of irreducible elements, at which language made contact with reality, gave way to a new method. In “later Wittgenstein,” nothing about the functioning of language is hidden, “everything lies open to view” in our ordinary use of language--illumination comes from a clear understanding of that ordinary use.

The embryonic Tractarian notion that our everyday language is in “perfect logical order” developed into the later idea that “ordinary language is all right,” and a horizontal method of philosophical elucidation, with invented terms for original ideas, German *komposita* for close linkage: “language game” (*Sprachspiel*), “forms of life” (*Lebensform*), and “family resemblances” (*Familienähnlichkeiten*) (Box 2). These terms may be off-putting, as jargon-y, pretentious and “foreign,” or alternatively charmingly evocative, puzzling, even poetic; they are more readily appreciated by example than rigorous definition, and not easily susceptible to a condensed exegesis. Wittgenstein attacked a still common conception of language as a simple mechanism of message transmission, atop an opaque process of thinking, emoting, and sensing. His strange compound words attempt to convey language as inseparable from other human activities, fundamental to them; readily accessible and susceptible to grievous misinterpretation; and key to our view of the world--“Commanding, questioning, recounting, chatting are as much a part of our natural history as walking, eating, drinking, playing.” Wittgenstein wished to destroy a misleading, and empty metaphysics: to cure by philosophical activity the confusions that arise from misunderstandings of how language functions, a failure to grasp the dimensions of meaning, and to recognize the diverse forms of human expressivity. Wittgenstein’s method has generated an array of inventions that even philosophy has yet to fully explore (Cavell 1979) (Glock 2005) (Wittgenstein 1987).

The term “language-game”, is used “to emphasize that the speaking of language is part of an *activity*, or of a *form of life*” – in contrast to the orthodox view that speaking a language is a matter of communicating thoughts to others. Wittgenstein employs simple imagined examples: for instance, a language used by two builders, which consists of four words – “block”, “pillar”, “slab”, “beam”; A calls out a word; B responds by bringing the stone which he has learned to

bring at that call. This use of words, together with “the activities into which it is woven”, is a primitive language-game. He extends the idea of a language-game to parts of our ordinary language. “Giving orders, and acting on them” is a language-game; so is “reporting an event”; so are “requesting, thanking, cursing, greeting, praying....” and so on. Wittgenstein is stressing the *practical function* of language. In the simple language-game with “block” and “pillar”, words are used to get building materials moved from one place to another. In the language-game of giving orders, words are used to influence people’s behavior. The practice of language begins early in life, when a child acquires language through training and imitation rather than explanation and definition (a process that likely repeats the ontogeny of language evolution in human evolution—such a late, strange development!--and brain physiology—the wide topographic distribution of language function) (Pinker 1990; McCarthy 2017; Aitchison 2012).

For Wittgenstein, thinking of language in terms of language-games is perspicuous in other ways. Like games in general, our use of language is governed by rules. In any game, some moves are allowed, others are not. The same is true of language. If you fail to follow the usual rules of a language-game you may still be speaking *a* language—just not *this* language; and you would not be understood by those who are playing the usual language-game by the usual rules.

What are the defining characteristics that make us call something a language? Wittgenstein develops a further parallel with games in general. In the case of games, he argues, there is no one feature or set of features that is common to everything that we call a “game”. There is only a pattern of “family resemblances” among different games: “a complicated network of similarities overlapping and criss-crossing”. The same is true for the things we call “languages”. “These

phenomena”, Wittgenstein say, “have no one thing in common in virtue of which we use the same word for all – but there are many different kinds of *affinity* between them”.

Scientific Publishing, from a Wittgensteinian Perspective

Many lessons might be drawn from the long history of scientific publishing (Box 3).

Wittgenstein doubted history as a reliable guide to understanding, and he seemed perversely proud of his purported ignorance of the ancients. (Wittgenstein 1987) (Glock 2005) In our own times, we are aware of the foibles of learning from histories that are incomplete, biased, subject to idolization and cancellation, and endlessly revisable. As an alternative to surmise from history there are language and meaning as embedded in usage, the language game. Confusions and misunderstandings arise where different people use the same words in different ways: following different linguistic rules and participating in different language-games. That, we suggest, is one feature of many interactions between editors and researchers.

We can apply Wittgenstein’s idea of family resemblances to the case of publishing. Most scientists may acknowledge that even their favorite journal is part of a business, although they are likely naïve as to the scale, organization, incentives, and rewards of the publishing industry. We can ask about family resemblances in this context: does scientific publishing better match to commercial publishing—media, general journals, textbooks and novels--or to the many scientific activities that aim to collect and share information—in the laboratory, clinic, or informal meeting or formal conference (Fleck 1979)? Resemblances in tradition and history, incentives and rewards, personnel and personalities? And family resemblances as well between editors and reviewers, between professional editors and society volunteers, in their roles in the world of publishing, and when they act as researchers? Perhaps more important are the dissimilarities between scientific practice and scientific publishing: at what point does the search for a result

become the formulation of a publication? Academic publishing is not critical to drug development and approval. Academic journals look suspiciously at “chance” observations as “false positives,” type I error, or significance seeking. Medical publishing may be aimed at predicting outcomes and prioritizing therapies, but the beneficiaries—patients—and treating physicians may find registries of “real world” outcomes more useful for these purposes than rigidly constrained academic publications, reports of animal models, and extrapolations from cell culture results. And internet posting may be preferable for physicists to claim priority and elicit comment on ArXiv, and for mathematicians to establish a proof.

From differences in language games, distinctions among forms-of-life may be inferred, and family resemblances discerned: Wittgenstein wondered what we would comprehend if a lion should suddenly acquire speech. Apart from jargon and acronyms, laboratory language is distinctive: a novice or layperson is easily recognized by their speech as not a member of the scientist’s community, and the researcher as a player in the science language game. The language of research is learned, by training rather than ostention or definition, and intrinsic to entering laboratory life and a scientific career. The language of the laboratory is a part of the form-of-life of scientific research, embedded in its physical practice and intellectual framework, in its teachers and students, and across many diverse fields of activity. But the language of the laboratory is not the language of the editor. We will argue that there is confusion in the rejection letter, confusion that implicates a divergence between scientific work and scientific publishing, and that these distinct language games point to a difference in forms-of-life: the style, practice, organization, aims, and rewards of two social entities.

Uses of such vague notions as “novelty” and “general interest”, annoying as they may be to read, are of course subjective and undefined. Is there a message to decode hidden in the editors’ communications? We are not provided a calculus for translation: does ‘mechanism’ mean an experimentally perturbed system, or a possible drug target? Is “rigor” shorthand for “more experiments, please?” Is “foundational” shorthand for any molecular biology or animal experiment? Or must we guess the editor’s intentions? Are they circumlocutions to calm the authors? Euphemisms for business decisions aimed at low rates of acceptance? Or meant to be discouraging of protest, or another similar submission? Are they, despite their vagueness, clear in meaning to the experienced scientist? Or is there a problem of pervasive lack of clarity—as might be suggested by the summary rejection of a revision (your paper was rejected, remember!) or ultimate rejection after rounds of revision (‘sorry!’), or conversely the work’s easy acceptance at an equivalent publication venue? Does the author have the code to decipher this language or criteria to respond to the journal’s criticisms, and do it easily—and without confusion?

Our concern is with language that is instrumental, that reflects an idealistic, skewed view of reality, and an ignorance of the world of the laboratory. The confusion created extends beyond the act of rejection.

The Game in Practice: Some Examples

1. “Mechanism.” A randomized clinical trial, completed without methodologic or statistical issues, with a surprising large difference between two patient cohorts. The Editor requests a “mechanism” for the difference. Must there be a mechanism? A single reason at a molecular or biochemical level? Would an explanation suffice? Or speculation rather than data? (Among ancillary laboratory data, findings for a single cell type in the patients’ blood was added to the manuscript, which was accepted; the result is now accepted as the

“mechanism” responsible for the superiority of one agent over the other, and also considered “drug-able.”)

2. “Fundamental.” A drug has a striking effect on an animal model of a human disease, with accompanying cellular and molecular data consistent with the improvement in survival and decreased morbidity. The journal rejects the manuscript because it only features “foundational” work.
3. “Completeness.” An animal model manuscript is rejected because insufficient variations of the initial experiment are tested; there are insufficient mice in each experiment; the design is faulty (post-hoc as based on the results presented); more strains should be tested for generalizability; a similar result should be sought in a human cell system. Or a clinical observation is required to extend or validate an animal model or an in vitro experiment.
4. “Functionality.” “--Descriptive” always deeply pejorative. Thousands of DNA or RNA sequences are analyzed computationally for relationships, pages of dense data appear in the supplement. But the manuscript is rejected if there is no functional data: a cell culture system, in vitro assay, animal experiment, to show a phenotype effect.
5. “All of the Above.” A manuscript is rejected, outright or after multiple revisions (with associated costs in time and money) as ultimately insufficient: in “rigor,” “reproducibility,” or as “descriptive,” “incomplete,” etc., based on a sample size of 2-4 reviewers, a vote, and an editorial adjudication.

Confusion and its Consequences

Language as expression. Wittgenstein viewed language as embedded in human activity, intrinsic to our actions. The language of the scientific paper is dry enough in its proscribed formulaic narrative, and overtly rhetorical: start with background, the history and nature of a question, tell a

story from hypothesis to results, stress the positive and de-emphasize anomalies, and trumpet future work and deep interpretations. This arrangement is not ageless, as a glance at scientific publications of the not distant past reveals. Data can be and have been presented in other ways.

Similarly familiar and inarguable are the processes and accompanying words that have developed in publication: deep metaphors are revealing (Lakoff 1980). Authors do not offer their work to a journal, they submit it. Editors do not offer opinions and often not more than vague suggestions, they accept (conditionally!) or reject a paper. The review is conducted with critiques (criticisms), requirements (obligatory) for revision, and no proportionate sharing of costs.

Success in publication leads to welcome exploitation, the editor deeming their paper worthy of an editorial, a highlight or perspective (from an outside vantage point), and publicity in the mass media. No question who is in charge, who has the power, and the nature of the “discourse.”

Journal publication itself, the stamp of peer review (peers of the realm? loyal peers? a jury of peers?), placement in the journal hierarchy, rule academia—even if valuable, perhaps critical information is conveyed more often, more effectively, at lunch or conference meetings, in industry papers and patent applications, all also encompassed in making public (or not) experimental data and theoretical speculations. Habitual language has established the predicate for the scientific paper, made alternatives difficult to conceive in the grand scheme, and inured participants to the odd character of the process, so it appears natural and optimal.

Language as a tool. Wittgenstein argued that when we use language there is nothing going on behind the scenes, no homunculus composing our speeches or telling us what we are thinking.

Nor is language solely a calculus for communication based on either a code or grammar. His view was anthropologic: language evolved and language was learned as part of being a human person. In our forms-of-life, we speak as we think and as we act. Of course, we can compose a speech in advance; but in the normal case, there is no cerebral homunculus within preparing our everyday speech acts. We cry “ouch” when alone but most often to elicit a response. Words evolved from diurnal living, denotations of things associated with activities, contexts, and innumerable variations. Reconstruction of the history of language by linguistic anthropologists and observations of language acquisition by child psychologists are supportive of this concept; neuroscience in the age of functional magnetic resonance imaging has dispelled the simplistic localization of language in a few areas of the cerebral cortex, showing it widely distributed and invoking activity in diverse motor, sensory, emotive and coordinating sites—and most verbal assertions and responses occur too fast for much pre-processing. That we acquire language by being trained or conditioned rather than by deliberately memorizing lists of nouns and verbs is all too obvious in the labor of learning a foreign language later in life.

So authors are trained by editors. With explicit criticisms based on “reproducibility,” “rigor,” “completeness,” “functionality,” more often implicitly, the editor’s communication is a command, over a broad range. Benign imperatives are suggestions for clarification, interpretation, reference to other work, and self-criticism, or subset analyses, further statistics, and generalization of conclusions. More arduous are requests for additional work. Common examples: replication or technical modifications of presented experiments; a second set of experiments predicated on results obtained in the first set; reproduction of work but on a more current platform, with techniques unavailable for the original work, or necessitating

collaborations and substantial costs; and, not infrequently, experiments aimed at a reviewer's questions, goals, and perspectives, not necessarily equivalent or relevant to the authors'. Some journals have openly assumed the role of uninvited (also unacknowledged) coauthor, offering a reiterative process of revision guided by reviewers and editors, or prior approval of a research plan as a guarantee of future publication. From the outset a journal's history, its known biases and preferences, its reviewer file, operate to discourage or encourage submissions: some fields are "hot," peers are available to critique, and citations are sure to follow, other areas more sedate, esoteric, and harder to judge. None of these criteria are particularly predictive of long-term importance, but in the short term they are obviously self-fulfilling. The review process has been inculcated in the preparation of the manuscript: what will the reviewers ask for, what does this journal require, have we sufficient data of the right sort—a superego to moderate the enthusiasm of the authors and force them to preview their work from an external vantage.

Language and representation. Wittgenstein famously declared the limits of language the limits of the world. That aphorism hides a world of philosophic discussion of the relationship of language to reality in general, and in science of the objective world to the words employed to describe it and, importantly, to conceive it. For our limited purposes, we address the perspective of the editors and their journals, the limits of their world and the confusions those limits entail. The examples above reflect these beliefs. Scientists seek explanations, editors seek mechanisms in an overwhelmingly reductionist mode. Manuscripts are doomed as "descriptive," or if a causation is not proffered, or anomalies appear as contradictions. Reductionism results in simpler summaries, easier publicity, and the dangling promises of spectacular future results, from quantum computers and fusion power to new drugs and gene therapies. Of course, this approach has been

enormously successful, but its primacy obscures the high probability of failure and alternative perspectives, the world still viewed as a Newtonian machine, imagined gears and wheels, not a state or system or pattern or statistical cloud, all so much harder to accurately observe and useful to predict the future

Also an example, the (mis)placement of “fundamental” work, especially in basic science, at the top of an epistemological hierarchy. The idea that a superior explanation for phenomena is to be sought at a more basic level of investigation, in molecular biology, chemistry, or physics, is ill supported, in theory and empirically, yet highly attractive to premier journals. (Ironically, physics abandoned “mechanism” when Einstein and Bohr supplanted Newton.) Experimentally constrained in vitro systems of molecules and cells and in vivo animal models are prized, despite their objectively limited usefulness in predicting behavior in humans or under even modestly more complex conditions. Mechanistic thinking is embodied in the wording, words, and language of the editor’s letter. Indeed, a new field must develop a novel adequate vocabulary and syntax to support a radical new perspective and escape from a prevalent, largely unconscious structuring of reality.

Last, the ideal of “completeness.” The researcher always appears more satisfied that her evidence provides an explanation than is the reviewer, and ultimately the editor. More can always be asked of the author, even if only redundant, selective, and often irrelevant to the main inquiry. There is an actual narrative here of discontent with “insufficient” papers, offering partial results and indefinite conclusions. Perhaps most clear here are the divergent aims of the scientist and the

editor. Historically, scientists have sought: explanations or descriptions, confirmations of theories or implications of anomalies; in reality, allowing laboratory results to lead to the next experiment, rather than formally testing hypotheses and theories. Most scientists, at least until recently, were not guided in their work by the vision of the finished paper. Results and their meaning are discussed within a laboratory, among colleagues, at conferences long before a paper begins to be constructed; figures and tables are means to understand and display data before they are part of a manuscript; and the internal criteria for belief in a result may be different or more limited than that of an external critic. Papers in the high impact journals routinely contain multi-cassette figures, experiments using a wide variety of confirmatory and complementary methods, animal and human data, and supplementary materials running to dozens of pages. Their cost of production in time and money can be enormous; there are unintended consequences, as a necessary goal for a scientist in training or seeking funding; and in addition to the opportunity costs for a scientist or laboratory, entire fields may become restrictive and unidirectional. That the first brief description of DNA's structure or a case report of penicillin's success would hardly satisfy a contemporary editor is a familiar trope. But underlying the jest is a more serious question of the relationship of a "complete" "perfect paper" and other perspectives of scientific understanding, progress from the handbook to the textbook (Fleck 1979), from provisional explanation to undoubted knowledge, the point at which "why?" no longer applies.

Language and human activities. Language is embedded in a form-of-life and in the world: we have addressed only superficially the social character of concepts, links between thought and speech; speech and communication; communication and communities; the claims of consciousness on the objective world, despite the world adhering to its own standard of

objectivity (Strawson 1966). The intentions, goals, and achievements of members of any form-of-life bear scrutiny. A satisfying experimental result or explanation need not equate to a perfect paper (the purpose of a perfect Fuji apple or unblemished Sukkoth etrog may be flawlessness, not taste, their exorbitant costs as fruit a bargain for powerful social and economic signals). And a reminder from Faraday as to whom we are trying to justify ourselves: are we answerable to the facts or to our fellows (Blackburn 2005)? Wittgenstein's approach does not require that we declare ourselves either idealists or realists, or maintain transcendent or relativistic views of the world—"just" that we take account of our language game in all its complexity.

Conclusion

We have focused here on the interaction between the producers and consumers of data and those that critique and promote it publicly. We ask, to paraphrase: What do journals want? We do not know editors' intentions, often we must interpret them, we can impute them from the language of their communications. And we can ask if they align with those of scientists, physicians, and patients. Our subject, the editor's letter, is the linguistic embodiment of the journal's care and consideration, the attitude of the editor towards submissions and their authors, and the aims of publication.

There are parallels between philosophy and science; both are rooted in "natural philosophy" even if the separate fields now largely ignore each other, or are even frankly antagonistic (philosophers against "scientism," scientists against "philosophical wool gathering"). Western philosophy can be viewed as derived from Platonic idealism and Aristotelian universalism; the pre-Socratics are lost in time but might have provided an alternative history, and there are other

philosophical approaches in the world that did not descend from ancient Greece. Much current scientific activity can be divided analogously, reductionist versus systematist for example. In the middle of the 17th century, in a small house in Holland, Baruch Spinoza, who rooted philosophy in the new age of reason, met with Henry Oldenburg, who would found and edit the Royal Society's Transactions. Their conversation would have been less troubled, perhaps more optimistic, than are most current interactions with editors.

Philosophers also invent new words for new ideas, as have scientists, to provoke new ways of thinking. To provoke new thinking has been our goal here, in hopes of unconfusing the disappointed trainee and desperate grantee reading the Friday afternoon email, and to provide a stance for the frustrated established investigator (and funders, and agencies, and readers of the literature), immediate in the puzzling language of that rejection letter. Some of our arguments might be hermeneutically applied to other confusions. What is being followed in "Follow the Science," or jostled in "Science Rocks" and shared in "Science for All?" What authority is being referenced in the scientific expert, and in what aspect of evidence and reasoning can the methods of science claim superiority? What power is exercised by the unchallenged professional editors in setting ethical standards of contributors and public policy? Does the "ideal" publication, transcendent on appearance in the highest impact journal, honestly reflect the experimentalists' realism (Hacking 1983)? Does it prompt--or stall--understanding (Blackburn 2005)? Are editors our guardians in Plato's cave, as shadows in the laboratory labor to a more permanent truth?

Wittgenstein advocated a therapeutic approach to philosophical problems, implying diagnosis and cure, but primarily promising clarity rather than proscription. Perhaps our current system of

scientific publication, its methods, and its language is optimal, the product of evolution and its vectors of selection. Theoretically attractive alternatives—preprints, signed reviews, more reviewers, peer or professional editors, post-publication comments, threads, data dumps to the web, artificial intelligence in the preparation, criticism, and revision of manuscript—all entail their own complications and consequences. But if we are confused, discontented, and misled, so are our students and trainees, our funders, and an increasingly suspicious public. Language is a good starting point for diagnosis—the journal editor’s intention—and treatment—what does the author want from the journal? Care in consideration of the changing alliance between words and actions perhaps pertains also as a prophylaxis, as scientific publishing further changes, and in settling the fraught relationship between science and other human enterprises, between scientists and other humans.

For Wittgenstein, rather than the miraculous finding expression in language, he celebrated “its expression by the existence of language” itself. Let us disregard his objections to scientism (its application to the humanities, for understanding much of life, and, yes, its dullness), but recall his assertion that statements of facts about the natural world can come only from the natural sciences (even if such statement do not teach us *everything* about the world). The scientist has privileged, unique access to the world’s facts, to the world itself—observation or experiment, theory or practice—and the thrill of that experience is an excellent antidote to the dejection of rejection.

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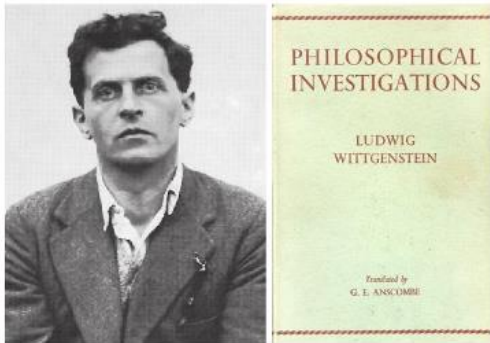


Figure 1. WITTGENSTEIN'S LIFE AND WORK

Wittgenstein's biography is extraordinary (Monk 1990; Kenny 2006; Child 2011.). Last son of a troubled, extremely wealthy Austrian family, his graduate education was minimal and his curriculum vitae spotty:

he flew kites to study aerodynamics, taught school in rural Styria, isolated himself in a secluded Norwegian hut, fought on the front lines for the Austro-Hungarian Empire in the first World War (he wrote the only book published during his lifetime while under fire and as a prisoner of war), and incognito as a hospital technician in London during the second, and designed for his sister a minor masterpiece of modern architecture. He divested himself of his family fortune to lead a life of ascetism. As a young man, entirely lacking formal credentials, he stormed Cambridge and demolished Bertrand Russell's majestic philosophy of mathematics; he became a Fellow of Trinity College based on the striking impression he made among the great thinkers of Cambridge and one book, the *Tractatus*. He taught, reluctantly and acerbically, small groups of students (among whom like-mindedness was a requirement; he taught philosophy but encouraged any other means of earning a living, from manual labor to medicine, as more useful). From his diaries and the impressions of his friends and colleagues, he appears a tortured soul; charismatic yet often unpleasant; distant from his family; strained in his passionate friendships; unengaged from politics, wars, and social upheaval—the intensity of his work as a philosopher (or anti-philosopher) was not easily distinguished from a life of intense moral quest and questioning (Monk 1990). Dying of cancer in his own doctor's home, Wittgenstein's last words were “Tell them I have had a wonderful life,” paradoxical considering his tortured biography, an ascetic

lifestyle and dyspeptic demeanor, his doubt that enjoyment was the goal of human existence. The audience of this essay is encouraged to approach Wittgenstein directly, as his aphoristic style little resembles typically technical modern philosophical treatises. His writings can be read as philosophy, anti-philosophy, autobiography, confession, sermon, even poetry.

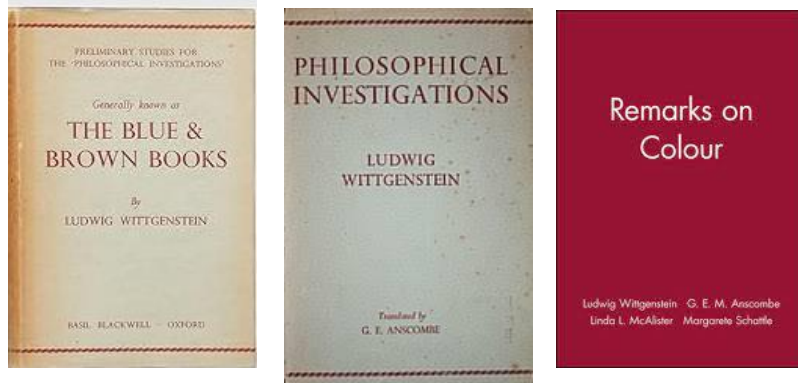


Figure 2. LANGUAGE GAMES:
METHOD AND EXAMPLES.

Wittgenstein's famous
formulation--"the meaning of a
word is its use in the language"--
is a simple expression of a

program to displace a traditional view of language as representing facts about the world, in favor of "looking and seeing" the variety of uses to which words are actually put (Bilestzki 2023). In Wittgenstein's method, examples of language-use are interwoven with actions; he argues that a word or sentence has meaning only through the "rules" of the "game" that is being played (Gustafsson 2019). Wittgenstein posited that language itself is the vehicle of thought, that thinking was a kind of speaking, that thought was not detached from expression. But language games are mainly characterized by questions, examples, and comparisons. Wittgenstein often employed "game" in his writing, as in the concept of family resemblances and the impossibility of giving a non-circular definition for a word easily used in ordinary speech. He also explored "rules" in games by analogy to their employment in language (Gustafsson 2019). In chess, upsetting the board would end a match unconventionally, and illegal connection with a computer would be cheating, but moving a king like a knight is neither, it is not playing the game at all—that rule is so foundational to the game itself to not be questioned. Or asking the significance of a chess piece or wood fragment separate from the game board and the game. Wittgenstein posited, "What is the meaning of a word?" followed by "What is an explanation of a meaning of a word," and in another analogy: how we measure a length helps us understand the meaning of "length." So the child learning the past tense of verbs is helped to understand "yesterday" and the concept

of time 's passing. If asked "How do I know that this color is red?"—the response is, "I have learned English." Wittgenstein dwelt also on terms of mathematics and their meaning, and he reflected extensively on our everyday language for talking about our own and other people's sensations and mental states. Some confusion lies in confounding grammar, as between similarities between first and third person actors, and our criteria for common statements: "I believe he is in pain," based on evaluation of context, prior knowledge, grimaces and posture, *and* a spoken complaint, is not equivalent to "I am in pain." But if *my* tooth hurts, I do not need to apply criteria in support of my claim that I have a toothache! His admonition of "meaning as usage" encompasses "use this word in a sentence" but is far more complicated. In the notebooks, he provides a dozen possible interpretations for a simple, banal declarative statement, all understood easily in context. Wittgenstein's philosophy was a "fight against the fascination which forms of expression exert upon us." The obverse of this battle i the strangeness of activities at the limits of language (music, humor, poetry), and the power of novel words to expand our language and therefore our thinking.

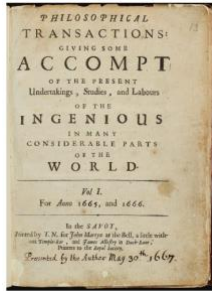


Figure 3. SHORT STORY OF THE LONG HISTORY OF SCIENTIFIC PUBLISHING

The history of scientific journals is pertinent, despite the absence of a comprehensive

definitive history beyond a few journal biographies (McDougall-Water 2015; Baldwin 2015).

The first editors of the 17th century were transcribers of speeches, abridgers of books, and communicators with foreign publications. The standard medium of presentation of scientific work was the monograph, often years in the writing. Later, journals serviced the many new professional organizations, and magazines aimed to popularize scientific work. Peer review is a mid-20th century innovation. Late in the century, minimal margins soared to huge profits, against expectations and by force of the innovative commercial publisher Robert Maxwell of Pergamon Press (Buranyi 2017; Hosking ; Hagve 2020). The profit margins now are extraordinary, somewhere between the tech and entertainment industries (Buranyi 2017). The unique business model is remarkable in many features: the work contained in manuscripts paid for by funding agencies but subject to initial submission fees and later page charges; vetting by peer review provided free-of-charge; extreme library subscription costs; and an ultimate product, regardless of additions or changes between submission and publication, owned (unusually for a publisher) by the journal rather than author through copyright, and reproduction subject to yet another fee. Concurrently, the burden of editorship and preparation of a valid scientific publication also has increased with the massive output of laboratories, avalanche of submissions, complexity and specialization of scientific work, the process of peer review itself, lengthy, iterative, sometimes subjective and political, but despite its flaws the necessary imprimatur for the scientific community and the public (Al-Mousawi 2020; DeWit H. 2018; Fyfe 2020; Gu 2018; Li 2020;

Smith 2006). The introduction of the impact factor created fierce competition among journals along a simple metric (Leonard 2022; PLoS Medicine Editors 2006; Young 2008) (Flier 2023). Most editors are responsible and respectful to their authors, reviewers, and readers, and their offices handle large numbers of increasingly diverse and international manuscripts. Concrete, specific, and constructive approaches to a manuscript require hard work and fine judgement. Positive results of such cooperative effort are papers that amaze readers with their ingenuity and insights, that report disease cures and public health advances. "Gatekeeping" is legitimate if painful work: not every experiment or trial deserves publication, and journals have readerships to consider and satisfy. Further, the editor has financial responsibilities in a competitive market that ranges from the journals with impact factors in the high double digits to pay-to-play entries. Editing is increasingly difficult to combine with a concurrent career as a scientist or clinician and is more easily fulfilled by the professional editor and the ancillaries affordable to the commercial journal than the society publication. The efficiencies of the current system have been attacked in the "crisis" of scientific publication. Branding of journals, led by the commercial publishers, has impacted academic science, with publication in a high impact factor journal as the dominant metric for career advancement: hiring, promotion, tenure, funding, and honors, and even access to space in the best journals based on field of study. Despite the vicissitudes of historical analysis (cascading impediments of selection and reinterpretation, false similarities and uncovered narratives, idolization and cancellation) some divergence from the rather simple relationship of the first editors to authors seems plausible. Wary also of predictions, a far different relationship among results, their authors, and the means of communication in an automated future of artificial intelligence, robotic experimental design and implementation, abundant and diverse publication venues, and automated reviews (and editors' letters).

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