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Empirical Expansion and Philosophical Autonomy: Reconsidering the Strong Programme through Historical Epistemology

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The article offers a philosophical response to Harry Collins's account of the Strong programme through the framework of historical epistemology. The first part situates the Strong programme within a longer transformation in the relation between philosophy and science. From positivism to the emergence of sociology and science studies, philosophy gradually loses its privileged role as the discipline defining the conditions of knowledge, while science itself becomes an object of empirical investigation. The second part reconstructs the historical a priori of the Strong programme. Drawing on Hélène Metzger's conception of historically variable a priori structures, the article shows how Collins's appeal to Winch, Kuhn, and the indeterminacy of experimental practice makes possible an empirical treatment of meaning, rationality, and knowledge. Collins's gravitational-wave studies and the experimenters' regress serve as the central case of this transformation. The third part argues that the Strong programme reveals a structural tension in contemporary philosophy: empirical expansion increases philosophy's engagement with scientific practice, but at the same time weakens its disciplinary autonomy.

Keywords: Strong Programme, Harry Collins, historical epistemology, historical a priori, sociology of scientific knowledge, philosophical autonomy

Эмпирическая экспансия и философская автономия: пересмотр "сильной программы" в свете исторической эпистемологии

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Статья рассматривает Сильную программу, предложенную Гарри Коллинзом, в рамках исторической эпистемологии. В первой части Сильная программа вписывается в более широкую трансформацию отношений между философией и наукой – от позитивизма к возникновению социологии и science studies. На этом пути философия постепенно утрачивает статус дисциплины, задающей нормативные условия знания, тогда как наука сама превращается в объект эмпирического исследования. Во второй части реконструируется историческое априори Сильной программы. Опираясь на концепцию исторически изменчивых априорных структур Элен Мецжер, я показываю, что обращение Коллинза к Уинчу, Куну и неопределенности экспериментальной практики открывает возможность эмпирического анализа значения, рациональности и знания. Ключевым примером этой трансформации служат

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коллинзовские исследования гравитационно-волновых экспериментов и феномен регресса экспериментаторов. В третьей части обосновывается тезис о том, что Сильная программа обнажает структурное напряжение в современной философии: эмпирическая экспансия углубляет вовлеченность философии в научную практику, но одновременно подрывает ее дисциплинарную автономию.

Ключевые слова: Сильная программа, Гарри Коллинз, историческая эпистемология, историческое априори, социология научного знания, философская автономия

In one of his earlier papers Harry Collins opens his reflection on the Strong programme with a question that has accompanied science studies for decades: "Is what I do here philosophy or sociology?" His answer is: "the question is misconceived" [Collins, 2018, p. 67]. At first glance, this remark concerns disciplinary classification. More fundamentally, however, it points to an uncertainty regarding the status of philosophical inquiry itself and its relation to empirical investigation. Collins's account can therefore be read not only as a history of the Strong programme but also as a contribution to a broader discussion about the changing place of philosophy in the production of knowledge.

My perspective on this discussion differs from Collins's. I write as a philosopher rather than a sociologist, and as a member of a later generation for whom the emergence of the Strong programme is already a solid historical fact rather than an intellectual novelty. For Collins, the Strong programme appears as a project in formation. For me, it appears primarily as part of the history of science studies, whose conditions of possibility themselves call for explanation. Rather than revisiting these debates from within the tradition that produced them, I approach them through questions that arise from my own work in epistemology: how do particular forms of knowledge become possible, what historical conditions shape epistemic concepts, and how do disciplinary boundaries themselves emerge and transform? These questions become especially important if, as Timothy Williamson argues, "contemporary philosophy lacks a self-image that does it justice" [Williamson, 2007, p. 8]. The emergence of the Strong programme can be read as one episode in a history of philosophy's attempts to redefine its relation to science and empirical research.

To analyse this episode, I draw primarily on Hélène Metzger's conception of the historical a priori. Unlike conceptions of the a priori as fixed and universal conditions of knowledge, Metzger treats them as historically dynamic structures. As she writes, a priori principles "are to a certain extent plastic; they may change in order to harmonise with the totality of our knowledge, or, on the contrary, they may transform our spontaneous system of the world" [Metzger, 1937, p. 215]. While historical epistemology was originally developed through the study of the natural sciences, I propose to apply it here to the study of science studies



itself. My aim is to describe the Strong programme as the product of a particular configuration of philosophical, sociological, and institutional factors that emerged in British academia during the 1960s and 1970s and to reconstruct the historical a priori underlying it.

As points of departure for this reconstruction, I take the three theoretical sources identified by Collins himself: the Wittgensteinian conception of meaning as use, largely mediated through Peter Winch; the Kuhnian conception of paradigms and scientific communities; and the recognition of the fundamental indeterminacy of experimental practice. Together, these elements challenge fixed meanings, universal standards of rationality, and the assumption that scientific outcomes can be understood independently of the practices through which they are produced. In doing so, they make possible the translation of philosophical questions into empirical investigations. Collins's gravitational-wave study is especially important in this respect because it shows how a classical philosophical problem of induction and the status of replication could be transformed into an empirical investigation of scientific practice.

I argue that the Strong programme forms part of a broader transformation in which philosophy gradually loses both its privileged epistemic status and its autonomy from empirical inquiry. The result is a structural tension: the expansion of empirical investigation increases philosophy's engagement with scientific practice while simultaneously threatening the disciplinary distinctiveness on which its authority traditionally depended.

From Positivism to the Sociology of Science

The intellectual developments described by Collins can be situated within a much longer process concerning the changing relation between philosophy and science. One of its earliest and most influential formulations can be found in the positivist project associated with Auguste Comte. Positivism did not merely propose a new philosophical doctrine: it attempted to redefine philosophy itself by grounding legitimate knowledge in the methods and achievements of the empirical sciences. This reform had important consequences for the status of philosophy. Rather than serving as a discipline that provides foundations for scientific knowledge, philosophy increasingly came to justify itself by reference to science. Scientific inquiry became the model of epistemic legitimacy, while philosophy was expected to clarify, systematise, or generalise results produced elsewhere. The authority to determine what counts as knowledge gradually shifted from philosophy to the sciences themselves.

The tendency to regard empirical inquiry as the privileged route to knowledge remains influential: the significance of positivism lies not

in any specific doctrine but in the disciplinary realignment it initiated. Once science becomes the normative model of knowledge, philosophy finds itself in a derivative position. The question is no longer how science should be grounded philosophically, but how philosophy should relate to scientific knowledge. This reversal constitutes one of the historical conditions that later make possible the emergence of sociology of science and, eventually, the Strong programme itself. The transformation was often carried out not by philosophers adapting science but by scientifically trained thinkers entering philosophy.

The development of sociology introduced a new way of approaching science. Whereas philosophy traditionally investigated science from within – through questions concerning knowledge, rationality, truth, and justification – sociology approached it as one social institution among others. The significance of this development lies in the fact that science could now be studied without direct philosophical mediation. Questions that had traditionally belonged to epistemology could increasingly be reformulated as questions about institutions, communities, professional practices, and social organisation. The study of science gradually acquired its own empirical methods and explanatory frameworks. Yet this separation was never complete. From the perspective of historical epistemology, empirical investigations of science continue to rely on conceptual assumptions that they do not themselves establish. Hélène Metzger emphasised this point and argued, "although the history of science cannot replace philosophy, neither can it entirely abandon the a priori without becoming inconsistent and vague" [Metzger, 1935, p. 5]. Historical and empirical investigations may provide evidence, but they cannot entirely determine the conceptual framework within which that evidence becomes meaningful.

This observation is particularly important for understanding the later emergence of science studies. The sociology of science appears to externalise the study of knowledge by treating science as an empirical object. Yet the very possibility of such an object presupposes conceptual distinctions inherited from philosophy. The result is not a replacement of philosophical inquiry by empirical investigation, but a new and increasingly unstable relationship between them. It is within this space that the Strong programme will later emerge.

The Strong programme is usually discussed as a theoretical position within the sociology of scientific knowledge. Here, however, I treat it as an object of historical epistemology. This approach draws on Hélène Metzger's notion of the historical a priori. For Metzger, the a priori should not be understood as a set of timeless principles preceding experience. Rather, "the a priori also consists in the fundamental tendencies that generate these notions" [Metzger, 1936, p. 33]. The task of historical epistemology is therefore not to identify universal foundations of knowledge but to reconstruct the historically specific tendencies that shape particular



forms of thought. Different intellectual formations may therefore rest upon different historical a priori, generating distinct conceptions of knowledge, rationality, and scientific practice. The Strong programme can be interpreted in precisely these terms. Rather than treating its central assumptions as self-evident or purely theoretical commitments, I suggest understanding them as expressions of a particular historical configuration. From this perspective, its emergence becomes a case study in the historical transformation of epistemic concepts and in the changing relationship between philosophy and empirical inquiry.

The Historical A Priori of the Strong Programme

If the Strong programme is approached as a historically specific epistemic formation, the next task is to identify the conceptual resources that made it possible. Taken together, these elements constitute what may be described as the historical a priori of the Strong programme.

The first component concerns the relation between meaning and action. Collins explicitly identifies Winch as a decisive influence, summarizing his position as follows: "What Winch argues, totally convincingly as I see it, is that peoples' actions and peoples' concepts are two aspects of the same thing" [Collins, 2018, p. 67]. Consequently, "you cannot understand the actions without the concepts and you cannot understand the concepts without the actions" [Ibid.]. Meaning is not something that exists independently of practice and is subsequently applied to it. Rather, meanings and practices are mutually constitutive. This position ultimately derives from Wittgenstein's analysis of rule-following. As Winch emphasises, "establishing a standard is not an activity which it makes sense to ascribe to any individual in complete isolation from other individuals" [Winch, 1990, p. 33]. Rules and meanings are therefore social phenomena sustained by collective practices. This provides one of the central premises of the Strong programme.

The second component is provided by Kuhn's analysis of scientific paradigms. Kuhn's significance for the Strong programme lies in his conception of scientific communities as historically specific traditions of practice: "some accepted examples of actual scientific practice – examples which include law, theory, application, and instrumentation together – provide models from which spring particular coherent traditions of scientific research" [Kuhn, 2012, p. 10]. Scientific communities are therefore organised around shared exemplars, practices, and standards rather than abstract methodological rules alone.

The third component concerns the indeterminacy of experimental practice. Collins repeatedly emphasises that experimental outcomes do not automatically determine their own interpretation. Experimental work

depends upon tacit skills, local judgments, and practical decisions that cannot be completely formalised. Although this theme emerges from studies of scientific practice rather than from philosophy in the narrow sense, it reinforces the implications of both Winch and Kuhn. Just as meanings depend on shared practices and paradigms depend on scientific communities, experimental results depend on forms of practical competence that exceed explicit methodological prescriptions.

Viewed separately, these three elements originate in different intellectual traditions. Viewed together, however, they perform a common epistemic function. Each challenges the assumption that knowledge can be grounded in fixed meanings, universal standards of rationality, or self-interpreting empirical facts. The Strong programme emerges at the intersection of these developments, transforming them into a research programme centred on the empirical investigation of knowledge itself. In this configuration, meaning, rationality, and knowledge become not only philosophical categories but also empirical objects of investigation. Meaning becomes inseparable from social practices, standards of rationality from scientific communities, and empirical facts from practical competences.

Collins's study of gravitational-wave detection gives this indeterminacy its most precise form. In the controversy over Joseph Weber's detectors, the issue was not simply whether particular experimental results were correct. The more fundamental problem was that the criteria of correctness themselves were unsettled. First, Collins concludes that "no set of 'scientific' criteria" could establish the validity of the findings in this field [Collins, 1975, p. 215]. He later formulates the point as the "experimenters' regress": to decide whether gravitational waves have been detected, one needs a good detector; yet to decide whether a detector is good, one needs to know what result it ought to produce [Collins, 1985, p. 84]. Finally, he extends this case into a long-term study of scientific seeing: in gravitational-wave detection, the signal passes through a long chain of instruments, transformations, statistical procedures, and acts of trust. Therefore, as Collins writes, "to 'see' in a science like gravitational wave detection is to agree, at some point, to cease to doubt the chain of inference – to see, then, is to agree to see" [Collins, 2004, p. 7]. The case is therefore not merely an example of experimental error or technical uncertainty. It shows how evidence, replication, and competence become mutually dependent within a scientific community. Collins makes this explicit when he writes that the definition of a good gravitational-wave detector and the question of whether gravitational waves exist are "congruent social processes" [Collins, 1985, p. 89]. From the perspective of historical epistemology, this case shows how a broader intellectual tendency – the empirical treatment of meaning, rationality, and knowledge – makes possible a research programme in which classical epistemological questions are investigated through concrete scientific



practices. Read through this lens, the problem of evidence in Collins's work is no longer addressed as a purely philosophical problem of justification, but as an empirical problem concerning the practices through which scientific communities stabilise facts.

The originality of the Strong programme lies in translating philosophical questions into the empirical study of practices. The movement toward practice was realised not primarily by philosophers but by sociologists, historians, and scholars of science studies. The study of scientific activity became increasingly empirical, while philosophy gradually lost its privileged position as the discipline responsible for defining the conditions of knowledge. This development is particularly striking because many of the concepts mobilised by the Strong programme have unmistakably philosophical origins. Yet arguments originally formulated within philosophical discussions of meaning and rule-following eventually became resources for empirical investigations of scientific communities and expertise.

The result is a peculiar reversal. Philosophical concepts remain indispensable, but philosophy itself no longer monopolises their interpretation or application. Questions that were once treated as internal to philosophy increasingly become objects of empirical inquiry. Philosophy continues to provide conceptual resources, yet it no longer controls the terms under which those resources are deployed. The empirical turn therefore does not eliminate philosophy; rather, it displaces it from its previously privileged position.

Empirical Expansion and Philosophical Autonomy

If the Strong programme translates philosophical questions into empirical investigations, it also transforms the conditions under which philosophy operates. Neither Collins nor Williamson regards empirical inquiry as a threat to philosophy. Yet once questions concerning meaning, rationality, and knowledge become empirical questions about practices and institutions, philosophy becomes increasingly dependent on forms of investigation whose authority it can neither fully appropriate nor entirely ignore.

I propose to describe this situation as an inverse relation between empirical expansion and philosophical autonomy. The more philosophy incorporates empirical methods and adopts the investigative strategies of the social sciences, the more successfully it participates in the analysis of scientific knowledge and expertise. Collins explicitly endorses such an orientation, arguing that "there is also nothing wrong with getting out of the armchair and doing experiments and what are, in regular academic

parlance, referred to as 'sociological' investigations of one group of experts or another" [Collins, 2018, p. 68]. He further insists that "we must be careful that our loyalty to our disciplines, and especially our loyalty to particular corners of our disciplines, does not divert us from using any tool that helps us learn about, in this case, expertise" [Ibid.]. From this perspective, disciplinary boundaries appear secondary to the pursuit of knowledge.

Yet this movement has a consequence. As philosophy increasingly adopts empirical methods, its distinctively philosophical status becomes more difficult to specify. The investigation of expertise, scientific practice, or technological systems may remain philosophically motivated, but its procedures increasingly resemble those of sociology, anthropology, or science studies. Philosophy gains empirical relevance at the cost of disciplinary distinctiveness.

The opposite movement generates a symmetrical difficulty. If philosophy seeks to preserve its autonomy by maintaining a primarily conceptual mode of inquiry, it risks distancing itself from precisely those domains in which knowledge is being produced and studied. The preservation of conceptual inquiry therefore remains necessary, but conceptual autonomy alone no longer guarantees epistemic authority in the study of science. The resulting tension should not be understood as a temporary methodological disagreement or as a problem that can be solved through a better balance between disciplines. Rather, it constitutes a structural condition of contemporary philosophy. The expansion of empirical inquiry simultaneously increases philosophy's access to scientific practice and weakens the autonomy that traditionally distinguished philosophical reflection from empirical research. Conversely, the preservation of philosophical autonomy tends to reduce philosophy's direct involvement in the empirical study of knowledge. What is gained on one side is partially lost on the other.

The significance of the Strong programme lies precisely in making this condition visible: it exemplifies a larger transformation in which philosophy becomes increasingly dependent upon empirical investigations while remaining unable to dissolve itself entirely into them. This condition emerged historically through the positivist subordination of philosophy to science, the sociological externalisation of science as an object of inquiry, and the Strong programme's operationalisation of empirical approaches to knowledge. Kuhn's characterisation of scientific revolutions is instructive in this regard. Reflecting on major conceptual transformations, he writes that each of them "transformed the scientific imagination in ways that we shall ultimately need to describe as a transformation of the world within which scientific work was done" [Kuhn, 2012, p. 111]. The developments discussed here may be understood in a similar way. They do not merely introduce new theories of knowledge; they alter the intellectual environment within which philosophical reflection on knowledge takes place.



This situation gives rise to two responses, each of which may be understood as a form of philosophical courage. The first consists in leaving the ivory tower and embracing empirical investigation. Philosophy enters into closer cooperation with sociology, science studies, anthropology, and related disciplines. It seeks to understand knowledge through the study of actual practices rather than through conceptual analysis alone. The advantage of this strategy is clear: it grants direct access to the empirical realities of scientific life. The cost is less obvious but equally significant. As philosophy adopts the methods and objects of empirical disciplines, its own disciplinary distinctiveness becomes increasingly difficult to define. The second response moves in the opposite direction. Philosophy preserves its conceptual autonomy and insists upon forms of inquiry that cannot be reduced to empirical investigation. It continues to ask questions concerning meaning, rationality, justification, and normativity that exceed the scope of descriptive research. Yet this strategy also has a cost. By limiting its engagement with empirical developments, philosophy risks weakening its authority in discussions concerning scientific knowledge itself. Neither position eliminates uncertainty. The difficulty therefore does not arise from a failure to choose the correct methodological strategy. It arises from the fact that philosophy itself occupies a position between conceptual reflection and empirical inquiry.

For this reason, the opposition between these two responses should not be interpreted as a choice between alternative strategies. They represent two poles of a single condition. The movement toward empirical investigation increases philosophy's relevance to the study of scientific practice while simultaneously eroding the boundaries that distinguish philosophy from neighbouring disciplines.

The tension identified here should therefore be understood not as an accidental difficulty but as a constitutive feature of contemporary philosophy. It emerges from the historical transformations that have redefined the relationship between philosophy, science, and empirical research since the nineteenth century.

Conclusion

Reconstructing the historical a priori of the Strong programme reveals more than the origins of a particular research tradition. It reveals a shift in the intellectual status of philosophy itself. The Strong programme appears not as an isolated episode in the sociology of scientific knowledge but as one manifestation of a wider tendency toward the empirical reconfiguration of philosophical questions. Seen in this context, the Strong programme constitutes a historically specific epistemic regime in which philosophical questions concerning meaning, rationality, knowledge, and

expertise are reformulated as empirical questions concerning practices, communities, and institutions. This transformation was prepared by a longer historical trajectory extending from positivist attempts to align philosophy with science, through the emergence of sociology as an empirical study of social forms, to the development of science studies as a field in its own right.

The consequences of this transformation extend beyond the sociology of scientific knowledge. As philosophical problems become increasingly accessible through empirical investigation, philosophy finds itself operating under a structural condition that it cannot fully overcome. The expansion of empirical inquiry strengthens philosophy's engagement with scientific practice while simultaneously weakening its disciplinary autonomy. Conversely, the preservation of conceptual autonomy risks reducing philosophy's authority in domains increasingly shaped by empirical forms of knowledge. The inverse relation between empirical expansion and philosophical autonomy is therefore not a temporary methodological difficulty but a constitutive feature of philosophy's contemporary situation.

Metzger's observation here remains highly relevant. She suggested that "the study of the history of science would cure the philosopher of the strange habit of positing, whether a priori or a posteriori, definitive concepts upon which the mind seeks to ground its desire for certainty" [Metzger, 1935, p. 13]. The history of the Strong programme suggests that philosophy itself may be subject to the same lesson. From this perspective, the significance of the Strong programme lies not only in what it says about science but also in what it reveals about philosophy itself. Its history makes visible the changing relationship between conceptual reflection and empirical investigation and, more broadly, the change of philosophy's place within contemporary knowledge production. Its concepts, methods, and disciplinary boundaries are not fixed foundations of knowledge but historically changing formations whose transformation remains an object of philosophical reflection.

References

Collins, 1975 – Collins, H.M. "The Seven Sexes: A Study in the Sociology of a Phenomenon, or the Replication of Experiments in Physics", *Sociology*, 1975, vol. 9, no. 2, pp. 205–224.

Collins, 1985 – Collins, H.M. *Changing Order: Replication and Induction in Scientific Practice*. London: Sage, 1985.

Collins, 2004 – Collins, H.M. *Gravity's Shadow: The Search for Gravitational Waves*. Chicago: University of Chicago Press, 2004.

Collins, 2018 – Collins, H. "Studies of Expertise and Experience", *Topoi*, 2018, vol. 37, pp. 67–77. DOI: 10.1007/s11245-016-9412-1.



Collins, 2026 – Collins, H. "The Bath School and the Strong Programme", *Epistemology & Philosophy of Science*, 2026, vol. 63, no. 3, pp. 22–32.

Kuhn, 2012 – Kuhn, T.S. *The Structure of Scientific Revolutions* (50th Anniversary Edition). Chicago: University of Chicago Press, 2012.

Metzger, 1937 – Metzger, H. "La méthode philosophique dans l'histoire des sciences", *Archeion*, 1937, vol. 19, pp. 204–216.

Metzger, 1936 – Metzger, H. "L'a priori dans la doctrine scientifique et l'histoire des sciences", *Archeion*, 1936, vol. 18, pp. 29–42.

Metzger, 1935 – Metzger, H. "Tribunal de l'histoire et théorie de la connaissance scientifique", *Archeion*, 1935, vol. 17, pp. 1–14.

Williamson, 2007 – Williamson, T. *The Philosophy of Philosophy*. Malden; Oxford; Carlton: Blackwell Publishing, 2007.

Winch, 1990 – Winch, P. *The Idea of a Social Science and Its Relation to Philosophy*. London: Routledge, 1990.