

Toward a Sociology of Cosmological Knowledge: Authority, Deviance, and Scientific Reasoning

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Abstract

Sociological analyses of knowledge have long shown that systems of belief and scientific practice are socially situated, shaped by authority, norms, and institutional power (Mannheim 1936; Berger and Luckmann 1966). Despite sustained engagement with the natural sciences, cosmology has remained largely peripheral within sociological theory, often treated as a technical domain external to social life. This marginalization reflects an implicit Earth-bounded assumption within the sociology of knowledge that limits accounts of how knowledge about the universe is produced, regulated, and rendered authoritative. Drawing on classical and contemporary work in the sociology of knowledge, science and technology studies, and theories of power and deviance (Merton 1973; Foucault 1980; Latour 1987), cosmological knowledge is conceptualized as an institutionalized form of social knowledge rather than a purely descriptive account of physical reality. Historical transformations in cosmological reasoning, including the emergence of experimental science and the regulation of intellectual deviance, reveal cosmology as a site of epistemic authority shaping legitimacy and collective understanding. Extending this framework beyond Earth-centered contexts highlights theoretical limits in sociological models presupposing stable terrestrial conditions and suggests directions for future inquiry into the social consequences of thinking beyond Earth.

1. Introduction

Sociological inquiry has long been concerned with the social organization of knowledge. From classical debates on ideology and social construction to contemporary work in science and technology studies, sociologists have demonstrated that systems of belief and scientific practice are embedded within structures of authority, institutional norms, and power relations (Mannheim 1936; Berger and Luckmann 1966). Knowledge is not simply discovered; it is produced, authorized, contested, and regulated through social processes.

Despite this sustained engagement with the natural sciences, cosmology has remained largely peripheral within sociological theory. Often treated as a highly technical domain concerned primarily with physical description, cosmology is rarely examined as a socially consequential field of knowledge. This marginalization reflects an implicit Earth-bounded assumption within much sociological work: the tendency to treat knowledge production as occurring under stable terrestrial conditions and within familiar institutional contexts.

Cosmological knowledge, however, addresses foundational questions about existence, order, and humanity's place in the universe. Historically, cosmological frameworks have served not only as scientific accounts but also as symbolic structures through which authority, legitimacy, and norms of reasoning have been organized. Disputes over cosmology have therefore functioned as struggles over epistemic authority and the boundaries of acceptable thought.

This paper advances a sociology of cosmological knowledge by conceptualizing cosmology as an institutionalized form of social knowledge rather than a purely descriptive account of physical reality. Drawing on the sociology of knowledge, science and technology studies (STS), and theories of power and deviance, the analysis examines historical transformations in cosmological reasoning, the emergence of experimental science, and the regulation of intellectual dissent. It further extends this framework analytically beyond Earth-centered contexts in order to expose the limits of sociological models grounded in assumptions of stability and redundancy.

By bringing cosmology into sociological analysis, the paper contributes to broader debates about authority, deviance, and the social conditions of

scientific reasoning, and outlines directions for future theoretical refinement and empirical inquiry.

2. Theoretical Framework

2.1 Knowledge as Socially Situated

The sociology of knowledge has long rejected the notion that knowledge emerges independently of social context. From Mannheim's foundational claim that knowledge is socially situated to Berger and Luckmann's analysis of reality as socially constructed, sociological theory has emphasized that systems of knowing are embedded within historically specific social arrangements (Mannheim 1936; Berger and Luckmann 1966). Knowledge, in this view, is not merely accumulated but organized, legitimated, and stabilized through institutions, norms, and power relations.

Within this tradition, scientific knowledge occupies a particular position. While often granted epistemic privilege due to its methodological rigor, science nonetheless operates within social constraints that shape what questions are asked, which methods are considered legitimate, and whose claims are recognized as authoritative (Bloor 1976; Knorr Cetina 1999). The sociology of scientific knowledge has demonstrated that even highly formalized forms of reasoning remain subject to social regulation, professional norms, and institutional interests. Extending this insight to cosmology is especially significant, given that cosmological knowledge has largely escaped sustained sociological scrutiny despite its far-reaching implications for human self-understanding.

2.2 Power, Authority, and the Regulation of Truth

The relationship between knowledge and power has been central to sociological and philosophical inquiry, particularly in the work of Foucault, who emphasized that regimes of truth are inseparable from mechanisms of authority and control (Foucault 1980). Knowledge does not merely describe reality; it organizes social order by defining what can be said, who may speak, and which forms of reasoning are considered legitimate.

Cosmological knowledge is especially consequential in this regard because it addresses fundamental questions about existence, order, and humanity's place in the universe. Historically, dominant cosmological frameworks have been closely aligned with religious, political, and institutional authority. Challenges to these frameworks have often been treated not simply as intellectual disagreements but as forms of deviance threatening established

social order (Shapin 1994). Cosmological disputes therefore function as struggles over epistemic authority rather than as purely technical disagreements.

A power–knowledge framework highlights cosmology as a site where authority over meaning and truth is continually negotiated (Foucault 1980). Cosmological change, from this perspective, cannot be understood as a simple linear progression toward accuracy but must be situated within the social conditions under which certain claims become authoritative while others are marginalized or suppressed.

2.3 Norms of Science and the Institutionalization of Experimentation

Merton's analysis of the normative structure of science provides a crucial bridge between knowledge production and social organization (Merton 1973). The norms of communalism, universalism, disinterestedness, and organized skepticism are not merely methodological ideals; they are social expectations enforced through professional institutions. These norms define legitimate participation in scientific practice and regulate acceptable forms of intellectual dissent.

The institutionalization of experimentation represents a major transformation in the social regulation of knowledge. Experimental reasoning shifted epistemic authority away from tradition and revelation toward reproducible observation and collective verification. Yet this shift did not eliminate power relations; rather, it reconfigured them. New forms of authority emerged, embedded in scientific institutions, peer review processes, and professional hierarchies (Zuckerman 1988).

Scientific reasoning, from this standpoint, constitutes a social achievement. The capacity of societies to tolerate uncertainty, debate foundational assumptions, and protect intellectual deviance depends not only on cognitive virtues but on institutional arrangements that structure legitimacy and dissent.

2.4 Deviance, Boundary Maintenance, and Epistemic Control

Sociological theories of deviance emphasize that deviation is not inherent in particular ideas but is defined through social reaction (Becker 1963).

Challenges to dominant knowledge systems often provoke mechanisms of boundary maintenance, including exclusion, stigmatization, and institutional sanction (Gieryn 1983). In the context of cosmological knowledge, such mechanisms have historically been especially pronounced due to the existential implications of cosmological claims.

The management of cosmological dissent can therefore be analyzed as part of broader social processes through which certain forms of reasoning are rendered unacceptable. Rather than treating early modern cosmological thinkers as isolated individuals, attention shifts to the institutional and cultural dynamics that classify particular claims as deviant. The regulation of cosmological deviance thus provides a window into wider mechanisms of social control, authority, and collective identity (Cohen 1985).

2.5 Limits of Earth-Bounded Sociological Assumptions

Despite extensive engagement with science, much sociological theory implicitly assumes stable, Earth-bounded social conditions characterized by relatively large populations, institutional redundancy, and environmental security. These assumptions shape prevailing models of knowledge production, deviance management, and social cohesion. Cosmological knowledge—and particularly its extension beyond Earth-centered contexts—poses a challenge to these underlying premises.

Foregrounding contexts in which social groups may be small, technologically dependent, and existentially vulnerable requires reconsideration of how knowledge, authority, and deviance are regulated under extreme conditions. This is not a speculative claim about future societies but a theoretical extension that exposes the limits of sociological frameworks when confronted with non-terrestrial or highly constrained environments.

3. Cosmological Knowledge and Social Authority

Cosmological knowledge has historically functioned as a powerful source of social authority, not merely by describing the structure of the universe but by legitimizing particular social orders and modes of reasoning (Berger and Luckmann 1966). Across societies, dominant cosmological frameworks have provided symbolic foundations for hierarchy, moral order, and epistemic legitimacy. Disputes over cosmology have therefore rarely been confined to abstract reasoning; instead, they have constituted struggles over authority, institutional power, and the regulation of meaning.

3.1 Cosmology as a Source of Legitimation

In pre-modern societies, cosmological narratives were deeply integrated into religious and political institutions, providing an ontological grounding for social hierarchy and normative order. The structure of the cosmos was frequently mapped onto the structure of society, thereby naturalizing existing relations of power (Durkheim [1895] 1982). From a sociological perspective, the authority of such cosmologies lay not in empirical verification but in their capacity to stabilize collective meaning and coordinate social behavior.

Within this context, cosmological knowledge operated as what Berger and Luckmann describe as a “symbolic universe”—a comprehensive framework that rendered social arrangements meaningful and inevitable (Berger and Luckmann 1966). Challenges to cosmological models thus threatened not only intellectual coherence but also the legitimacy of institutions anchored in those models. This helps explain why cosmological dissent was often treated as moral or political deviance rather than as a technical disagreement.

3.2 Disruption and the Reconfiguration of Authority

The emergence of early modern cosmological challenges marked a significant rupture in the relationship between knowledge and authority. The displacement of Earth from the center of the universe undermined long-standing symbolic hierarchies and destabilized assumptions about humanity’s privileged position in the cosmic order (Shapin 1994).

Sociologically, the significance of this shift lies less in the accuracy of new models than in their implications for epistemic authority.

Challenges to established cosmological frameworks exposed the contingency of previously unquestioned truths and revealed the extent to which authority over knowledge had been institutionally enforced. Resistance to early cosmological innovators can therefore be understood as a form of boundary maintenance (Gieryn 1983), aimed at preserving not only doctrinal coherence but also institutional legitimacy. Cosmological conflict thus became a site where broader struggles over intellectual autonomy and social control were played out.

3.3 Experimental Reasoning and Institutional Transformation

The gradual institutionalization of experimental reasoning reconfigured the social basis of cosmological authority. Rather than eliminating conflict, experimentation altered the criteria through which legitimacy was granted. Authority increasingly rested on methodological competence, reproducibility, and institutional recognition (Merton 1973; Latour 1987), rather than on alignment with tradition or theological doctrine.

From a sociological standpoint, this transformation represents a shift in the mechanisms of social regulation rather than a simple triumph of rationality. Experimental science introduced new forms of exclusion and gatekeeping, as access to legitimate knowledge production became contingent upon training, institutional affiliation, and adherence to emerging professional norms (Latour and Woolgar 1986). Cosmological knowledge, once embedded primarily within religious institutions, became increasingly regulated by scientific organizations exercising their own forms of epistemic authority.

This reconfiguration supports Merton's argument that scientific norms are socially enforced expectations rather than purely cognitive virtues. The acceptance of cosmological claims became dependent on conformity to institutionalized standards of evidence, reinforcing new hierarchies within the scientific community while expanding the space for regulated dissent.

3.4 Authority, Dissent, and the Management of Cosmological Deviance

Despite the increasing institutional protection of scientific inquiry, cosmological dissent continues to provoke heightened forms of scrutiny and regulation. This persistence reflects the distinctive status of cosmological knowledge: it addresses foundational questions that exceed ordinary empirical domains and intersect with deeply held cultural assumptions (Becker 1963).

Sociological theories of deviance illuminate how cosmological challenges are managed within modern scientific institutions. Claims that deviate from dominant cosmological models are subject to intensified boundary work, including peer review, reputational sanction, and exclusion from institutional resources (Gieryn 1983). Although these mechanisms differ markedly from earlier forms of suppression, they perform similar regulatory functions by delineating the limits of acceptable reasoning.

This continuity underscores a central sociological insight: cosmological knowledge is not merely produced within social structures but actively participates in their reproduction. Authority over cosmology confers authority over meaning, legitimacy, and the boundaries of rational thought.

3.5 Implications for Sociological Analysis

Examining cosmological knowledge as a site of social authority highlights the analytical value of extending sociological inquiry into domains traditionally treated as external to social life. Cosmological frameworks do not simply reflect advances in scientific understanding; they reshape the conditions under which knowledge is produced, contested, and institutionalized.

Recognizing cosmology as a socially consequential form of knowledge challenges sociological theories that implicitly bracket questions of the universe as irrelevant to social analysis. Instead, the regulation of cosmological knowledge offers a revealing lens through which to examine enduring tensions between authority, deviance, and intellectual autonomy.

4. Deviance, Experimentation, and the Regulation of Reasoning

The emergence of experimental science is often portrayed as a linear expansion of rational inquiry and intellectual freedom. From a sociological perspective, however, experimentation represents a transformation in the social regulation of reasoning rather than the removal of regulation altogether (Merton 1973). Experimental methods altered how deviation was identified, evaluated, and sanctioned, introducing new institutional mechanisms for managing dissent while redefining the boundaries of legitimate knowledge.

4.1 Intellectual Deviance as a Social Category

Sociological theories of deviance emphasize that deviation is not an intrinsic quality of ideas or behaviors but a status conferred through social processes (Becker 1963). Within knowledge-producing institutions, certain forms of reasoning are rendered legitimate while others are classified as irrational, unscientific, or irresponsible. Cosmological claims, due to their foundational implications, have historically occupied a particularly sensitive position within this classificatory process.

Prior to the institutionalization of experimental norms, cosmological deviance was frequently treated as moral or theological transgression. As scientific institutions gained authority, deviance was redefined in epistemic rather than doctrinal terms. Ideas increasingly came to be evaluated according to methodological conformity, empirical adequacy, and institutional credibility. This shift did not eliminate the stigmatization of deviance but reframed it within a professionalized system of evaluation.

4.2 Experimentation and the Normalization of Dissent

The development of experimental reasoning introduced a paradoxical dynamic: it simultaneously expanded the scope of permissible dissent while intensifying mechanisms of control. On the one hand, experimental science legitimized questioning, skepticism, and the revision of established knowledge. On the other hand, it imposed strict criteria regarding how such questioning could be conducted and by whom.

This dual function aligns with Merton's analysis of organized skepticism as a norm that both enables critique and disciplines it (Merton 1973). Dissent is not rejected outright but required to conform to standardized procedures, institutional expectations, and professional hierarchies. Experimentation thus normalized certain forms of deviance while marginalizing others, producing a regulated space in which intellectual autonomy is simultaneously protected and constrained.

In the context of cosmology, this regulation is especially pronounced. Given the scale and abstraction of cosmological inquiry, access to legitimate dissent is heavily mediated by institutional affiliation, technical expertise, and peer recognition. The boundaries between innovation and deviance are therefore continually negotiated within tightly controlled epistemic communities.

4.3 Institutional Gatekeeping and Epistemic Control

Modern scientific institutions employ a range of mechanisms to regulate cosmological reasoning, including peer review, funding allocation, credentialing, and reputational assessment. These mechanisms function as forms of epistemic gatekeeping that shape the trajectory of knowledge production by determining which questions are pursued and which claims are considered credible (Gieryn 1983; Cohen 1985).

From a sociological standpoint, such mechanisms resemble broader systems of social control observed in other institutional contexts. They operate through indirect sanctions rather than overt coercion, reinforcing conformity through incentives, recognition, and access to resources. While these mechanisms are essential for maintaining methodological rigor, they also contribute to the stabilization of dominant paradigms and the marginalization of alternative perspectives.

This does not imply that scientific gatekeeping is illegitimate or oppressive by default. Rather, epistemic control remains an unavoidable feature of collective knowledge production. The key sociological question is not whether regulation exists, but how it is structured and whose interests it serves.

4.4 Cosmological Knowledge and Heightened Sensitivity to Deviance

Cosmological knowledge occupies a distinctive position within scientific practice due to its implications for human self-understanding and collective meaning. As a result, cosmological deviance often provokes stronger regulatory responses than deviation in more localized scientific domains. Challenges to prevailing cosmological models can destabilize not only technical assumptions but also broader cultural narratives concerning humanity's place in the universe.

This heightened sensitivity helps explain the persistence of boundary work in cosmology, even within ostensibly open scientific environments. The regulation of cosmological reasoning reveals the limits of institutional tolerance for uncertainty and ambiguity, particularly when foundational assumptions are at stake (Shapin 1994). In this sense, cosmology functions as a stress test for the norms of scientific openness and organized skepticism.

4.5 Sociological Implications

Experimentation, understood sociologically, operates as a mechanism of social regulation that reshapes the management of deviance, authority, and legitimacy. Experimental science did not abolish social control over knowledge but transformed it, replacing doctrinal enforcement with procedural and institutional regulation.

This perspective challenges celebratory narratives of scientific progress by foregrounding the social conditions under which intellectual freedom is granted, constrained, or withdrawn. It also highlights the importance of examining how cosmological knowledge, in particular, intensifies these dynamics due to its symbolic and existential significance.

5. Cosmology Beyond Earth: Sociological Extensions

Sociological theories of knowledge and social regulation have been developed primarily with reference to terrestrial societies characterized by relatively large populations, institutional redundancy, and environmental stability. While these assumptions are rarely made explicit, they underpin prevailing models of authority, deviance management, and collective reasoning (Knorr Cetina 1999). Cosmological knowledge—particularly insofar as it extends beyond Earth-centered contexts—poses a challenge to these premises by foregrounding social conditions under which such stability cannot be taken for granted.

5.1 Extreme Conditions and the Reorganization of Social Regulation

Contexts characterized by technological dependence, environmental hostility, and limited margins for error place heightened demands on social coordination and norm enforcement. Sociological research on isolated and high-risk environments suggests that under such conditions, tolerance for deviation often narrows and authority structures tend to consolidate (Perrow 1984; Vaughan 1996).

Such contexts are not introduced here as predictions about future extraterrestrial societies, but as analytical boundary cases that expose the limits of existing sociological models. In environments where survival depends upon strict adherence to shared procedures and epistemic consensus, the regulation of knowledge becomes a central concern. Deviant reasoning—particularly when it challenges foundational assumptions—may be perceived as a threat to collective safety rather than as a contribution to intellectual diversity. This dynamic highlights a tension already present within scientific institutions, but intensified under conditions of constraint.

5.2 Epistemic Authority in Technologically Dependent Contexts

Cosmological knowledge beyond Earth is necessarily mediated by complex technological systems. Under such conditions, epistemic authority becomes closely tied to technical expertise and control over informational infrastructure. This creates the potential for concentrated authority over knowledge production and interpretation, as access to data and methodological competence becomes unevenly distributed.

Such concentration does not imply authoritarianism, but it underscores the fragility of epistemic pluralism in contexts where verification is resource-intensive and dissent is costly (Goffman 1961). The norms of organized skepticism may persist, yet their practical expression may be constrained by technological dependency and institutional hierarchy. The regulation of cosmological reasoning in these settings therefore offers a critical lens through which to examine the relationship between expertise, authority, and collective trust.

5.3 Collective Survival and the Management of Cognitive Autonomy

A central sociological tension emerges in contexts where collective survival depends upon coordinated action informed by shared epistemic frameworks. While cognitive autonomy remains essential for innovation and error correction, it may also be perceived as destabilizing when it challenges operational consensus.

This tension is not unique to extraterrestrial contexts, but becomes more visible when environmental and technological constraints reduce tolerance for uncertainty. Intellectual freedom, from this perspective, is not an abstract value but a socially negotiated one, granted or restricted depending on institutional capacity, perceived risk, and collective priorities. Cosmological knowledge, by addressing fundamental assumptions about existence and order, intensifies this negotiation.

5.4 Implications for Sociological Theory

Extending sociological analysis beyond Earth-bounded assumptions does not introduce a new empirical domain, but rather functions as a theoretical stress test for established frameworks. Prevailing models of knowledge production, deviance regulation, and authority may be insufficiently equipped to account for contexts characterized by extreme constraint and existential vulnerability.

Recognizing these limitations does not diminish the value of classical sociological theory. Instead, it underscores the need for conceptual refinement that accounts for variability in environmental and institutional conditions. Cosmological knowledge serves here as a boundary case that

reveals how deeply social regulation remains embedded in assumptions of stability, redundancy, and security.

5.5 Analytical Contribution

Cosmological knowledge is not only shaped by social structures but also exposes the conditions under which those structures operate. Treating cosmology beyond Earth as a theoretical extension rather than a speculative future highlights an underexamined dimension of knowledge regulation.

The value of this extension lies not in predicting future societies, but in clarifying the social mechanisms through which knowledge, authority, and deviance are negotiated under conditions that challenge Earth-centered assumptions. In doing so, it opens space for further theoretical and empirical work at the intersection of sociology, science, and cosmological inquiry.

6. Discussion

Cosmological knowledge can be understood as a socially situated and socially consequential form of knowledge production. Drawing on established traditions in the sociology of knowledge, science and technology studies, and theories of power and deviance, the analysis demonstrates that cosmology is not external to social life but participates directly in the organization of authority, legitimacy, and cognitive norms. This discussion clarifies the theoretical contribution of the argument, addresses potential concerns regarding scope, and situates the framework within broader sociological debates.

6.1 Theoretical Contribution

The central contribution of this analysis lies in identifying an implicit Earth-bounded assumption within sociological theories of knowledge. While sociology has long examined how knowledge is shaped by social structures, it has less often considered how assumptions about environmental stability, population scale, and institutional redundancy condition those accounts.

Foregrounding cosmological knowledge—particularly in contexts that challenge such assumptions—extends sociological theory without abandoning its core commitments. Rather than proposing a new grand theory, the argument advances a mid-range conceptual framework that integrates cosmology into existing sociological accounts of authority, deviance, and regulation. Cosmology emerges as a revealing site through which societies manage foundational uncertainty and negotiate the boundaries of legitimate reasoning. Although the contribution is primarily theoretical, it is grounded in well-established sociological traditions and intended to generate questions for future empirical inquiry.

6.2 Addressing Concerns of Speculation and Scope

One potential objection is that extending sociological inquiry beyond Earth-centered contexts risks speculative reasoning. This concern is warranted given sociology's emphasis on empirical grounding. However, the extension developed here is analytical rather than predictive. Extraterrestrial and technologically constrained environments function as boundary cases that

illuminate the limitations of existing frameworks rather than as empirical claims about future societies.

Cosmological knowledge is treated as a social object whose authority, regulation, and consequences can be examined sociologically regardless of any particular scientific model or future scenario. In this sense, the argument remains firmly within the domain of sociological theory and avoids metaphysical or philosophical speculation.

6.3 Cosmology and the Sociology of Deviance

A further contribution lies in linking cosmological knowledge to sociological theories of deviance and social control. Challenges to dominant cosmological frameworks have historically provoked intensified regulatory responses, highlighting the symbolic and institutional sensitivity of cosmological claims. This perspective complements existing work on scientific controversy by emphasizing how foundational knowledge domains trigger boundary maintenance and epistemic control.

Importantly, the analysis does not portray scientific regulation as inherently repressive. Regulation is an unavoidable feature of collective knowledge production, necessary for maintaining coherence and methodological rigor. The sociological task is therefore to examine how such regulation is structured and how it balances competing demands for innovation, stability, and authority.

6.4 Implications for the Sociology of Knowledge and Science

Bringing cosmological knowledge into sociological analysis contributes to ongoing debates regarding the scope and limits of social construction in science. The argument does not deny the material reality investigated by cosmology, but insists that the social organization of cosmological knowledge warrants systematic attention. This position aligns with and extends STS scholarship by shifting focus toward a domain often treated as epistemically exceptional.

Moreover, sociological engagement with cosmology can enrich broader discussions of expertise, trust, and institutional legitimacy. In an era of heightened public attention to scientific claims about the universe,

understanding how cosmological authority is constructed and contested carries implications that extend beyond academic theory.

6.5 Limitations and Directions for Future Research

As a theoretical contribution, this analysis has limitations. It does not provide empirical case studies, nor does it engage directly with contemporary scientific practice in cosmology. These omissions are deliberate, reflecting the aim of establishing a conceptual framework rather than exhaustively documenting empirical variation.

Future research could build on this framework by examining how cosmological knowledge is produced and regulated within specific institutional settings, such as large-scale scientific collaborations or public science communication. Comparative studies of knowledge regulation in isolated or high-risk environments could further test the theoretical claims advanced here. Such empirical work would not replace the present analysis but would extend and refine it.

7. Conclusion

Cosmological knowledge can be understood as a socially situated and socially consequential form of knowledge production. Drawing on established traditions in the sociology of knowledge, science and technology studies, and theories of power and deviance, the analysis has shown that cosmology is not merely a technical enterprise concerned with the structure of the universe, but a domain in which authority, legitimacy, and norms of reasoning are actively negotiated.

Identifying an implicit Earth-bounded assumption within prevailing sociological theories of knowledge extends sociological inquiry into a domain that has received limited systematic attention. Rather than proposing a new grand theory, the argument advances a mid-range framework for examining how cosmological knowledge participates in the regulation of intellectual deviance, the reconfiguration of epistemic authority, and the stabilization of collective meaning. Disputes over cosmology thus emerge not only as scientific controversies, but also as struggles over social order and the boundaries of legitimate reasoning.

The extension beyond Earth-centered contexts is not offered as speculative prediction, but as an analytical device that exposes the limits of sociological models developed under assumptions of stability and redundancy. Such boundary cases highlight the conditional nature of cognitive autonomy and intellectual freedom, revealing how these values are socially negotiated within institutional and environmental constraints rather than assumed as universal features of scientific practice.

Bringing cosmological knowledge into sociological analysis contributes to ongoing debates concerning the scope of the sociology of knowledge and science. Sociological theory stands to benefit from greater engagement with forms of knowledge that address humanity's place in the universe and the conditions under which such knowledge is produced, authorized, and contested. The framework developed here is intended as an invitation to further theoretical refinement and empirical investigation rather than as a definitive account.

Ultimately, the sociology of knowledge cannot remain confined to Earth-centered assumptions if it is to account adequately for the social dynamics of scientific reasoning in an increasingly cosmological age. A sociology of

cosmological knowledge offers a productive site for examining enduring tensions between authority, deviance, and the social conditions of knowing.

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