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Unlocking the power of diversity for supply chain knowledge: Is pluralism in theorizing styles the key?

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Abstract

The authors reflect on the opportunities for diversity in supply chain research by examining the prevalent modes of theorizing in the field. This examination focuses on identifying common styles of theorizing in supply chain management research, which are defined as specific modes of reasoning to make inferences about supply chain phenomena. Armed with this definition, the authors elaborate how research in the field has for the most part hinged on a propositional style as a common base for theorizing and theoretical contributions. The analysis that is provided emphasizes the limits of this style, particularly when it is considered as the preferred form for all theoretical contributions. The authors, in turn, make the case for a pluralistic system of knowledge production that supports the use of multiple theorizing styles that, when used alongside one another in a coordinated or co-oriented manner, will lead to a better understanding of supply chain management phenomena.

KEYWORDS
epistemology , research methods, supply chains, theory

INTRODUCTION

Supply chain management (SCM) research strives to create knowledge that will have impact and that will move us towards "solving" the "wicked problems of global supply chains" (Wieland et al., 2024, p. 4). To that end, concerns over whether or not SCM research is generating sufficiently novel, valuable, and useful knowledge have met with repeated calls for more *diversity*: greater diversity of approaches in the research field, such as paradigmatic diversity (Matthews et al., 2016), philosophical diversity (e.g., Bille & Hendriksen, 2023; Darby et al., 2019), and methodological diversity (Carter et al., 2008; Wieland et al., 2024), is considered essential for the community's collective ability to generate new insights into SCM phenomena.

Nonetheless, it is often observed that there persists, in general, a lack of diversity in SCM research. This has led the current editors of the *Journal of Supply Chain Management* to "wonder" (at least in the context of qualitative SCM research) "why there is such a strong tendency toward a small set of approaches" (Wieland et al., 2024, p. 4). We might express the same sentiment more broadly and wonder why do supply chain scholars tend to draw on such a small range of paradigms, methods, or theoretical lenses? And why, for the most part, do the often-made calls for diversity in approaches go largely unheeded? We argue in this article that the answer to these questions

lies in common ideas about theory and about how supply chain scholars are expected to form theoretical contributions. Our argument is that many scholars struggle in exploring, let alone embracing, novel and unconventional approaches to SCM research (such as critical discourse analysis) in light of the common denominator that at the end of the day (and in order to get their work published), their study needs to make a theoretical contribution by abiding to a canonical "boxes and arrows" form (Ketchen & Hult, 2011, p. 16).

As a context to our argument, the scholarly supply chain field has of course long stressed the importance of theory for the evolution of the discipline: good supply chain theory is seen to be essential for improving supply chain practice (Flynn et al., 2020), and editors of the field's leading journals, including the *Journal of Supply Chain Management*, stress the importance of articles making a sufficiently strong or novel "theoretical contribution" in relation to the prior knowledge base on a topic or phenomenon (Boer et al., 2015; Carter, 2011; Rindova, 2011). With such a contribution being increasingly the "hygiene factor" for a manuscript to be published, including in the *JSCM*, the advice to authors has been to attend more carefully to aspects of their own theoretical reasoning with the aim of strengthening their theorizing (Chicksand et al., 2012) or to piggyback one's reasoning on theories from adjacent fields (e.g., Gligor et al., 2019; Halldórsson et al., 2015; Hitt, 2011; Shook et al., 2009; Walker et al., 2014) that already provide a sufficiently well-developed and "proven" argumentation structure.

With this conceptual essay, we insert ourselves into these ongoing discussions of how theory and theorizing can better advance the field of SCM, but we do so by taking a different approach: we seek to problematize the field's default view of the form and structure that "theory" should take and aim to demonstrate how a variety of theorizing approaches is better able to advance supply chain knowledge. Drawing on Hacking's work on *styles* (Hacking, 1992), we conceptualize the notion of prevalent *theorizing styles* in SCM research. On the basis of this conceptualization, we elaborate how research in the supply chain field has, for the most part, hinged on one style of theorizing as a common base for theorizing and theoretical contributions—the propositional style. We critically examine the propositional style of theorizing and the theoretical outputs that it generally leads to. We do not only focus on the products of using the so-called propositional style—that is, the structure of dominant supply chain theories—but also on the associated practices of theorizing and on how theoretical knowledge in this vein is developed in relation to data and on how theoretical claims are formulated.

As well as drawing out the limits of the propositional style, we also identify its epistemological encroachment of the entire supply chain field (Wieland et al., 2024). Highlighting the myopia that this, in turn, leads to, and its net effect of constraining our understanding of phenomena, we argue, in turn, for a reconsideration of different styles of theorizing in SCM. We conjecture that such pluralism in theorizing styles might serve to liberate the full value of diverse approaches to SCM research when they are "allowed" to contribute to our knowledge of supply chain phenomena in ways that go beyond confining theory to a specific propositional structure.

The structure of our essay follows the structure of our overall argument. We first give an account of the concept of a theorizing style, as the methodological basis for our inquiry into prior work and the established understandings of theory in the supply chain field. We then turn to the propositional style, which has been predominant in the supply chain field, as it has been in other areas of business and management research (Cornelissen, 2024). Highlighting the strengths as well as inherent limits of this style in how it helps us understand phenomena, we make the case in the subsequent sections of the article for a pluralistic epistemology where different styles of theorizing are used alongside one another and progressively support our overall understanding of supply chain phenomena (Wieland, 2021). We conclude our essay with spelling out some implications of this view for the supply chain field, including for authors and editors.

STYLES OF THEORIZING

There have been many calls over the years for a greater diversity of methods and theories to be used in the field of SCM (Boer et al., 2015; Carter et al., 2008; Matthews et al., 2016; Wieland et al., 2024). While diversity is increasing, it seems to be happening at a slower rate than we might expect given the profile of those making the calls. We hypothesize that one of the factors that may explain the slow rate of progress is a limited conceptualization of theory itself. The key concept we use to develop this argument is that of "theorizing styles."

Theorizing styles, as we define it here, are established modes of logical reasoning that are used to make sense of supply chain phenomena and in support of making a set of informed claims that help us better understand such phenomena (Cornelissen et al., 2021). A theorizing style is marked by a distinct "grammar" or "language" to reason with and is guided by an epistemic goal. Defined in this way, different styles, when used, enable researchers each in their own way to form and change our understanding; whether that is, say, to further explain or

predict a phenomenon as a goal ("propositional" style), conceptually frame and interpret it differently ("perspectival" style), or establish a way to provoke a more critical understanding of, and engagement with, a given phenomenon ("critical" style) (Cornelissen et al., 2021). These different styles will be considered in more depth later in the article.

From this perspective, a style effectively serves as a model for theorizing about a particular phenomenon in specific instances. A common style frames questions, defines the epistemic goals and scope of the inquiry, and prefigures how supply chain researchers make inferences, as they reason, in relation to their data and put forward their theoretical claims in a specific written form. A style is furthermore epistemic in nature because its continued use *across* individual studies and *over time* reinforces specific ways of developing knowledge, offers criteria for deciding what counts as credible theoretical claims, and determines what form acceptable theoretical outputs and "contributions" should take. In other words, a style does not merely describe different ways of doing research in specific instances but directly configures how we are justifiably able to theoretically reason about phenomena by following, say, a propositional style, discourse analytic or interpretive-hermeneutical one.

The view that one can identify distinct styles of reasoning in research practices is of course not a new idea as such. Classic work in the sociology of science (e.g., Fleck, 1935/1970; Mannheim, 1953) already explored the idea in some depth, pointing to how broader epistemic genres or shared regimes of knowing (Kuhn, 1962), as "styles," become established in different scientific thought communities. Notably, Fleck (1935/1970) coined the concept of a thought collective (*Denkkollektiv*) to define communities in which scientific knowledge is produced using its uniquely formed thought style (*Denkstil*). A thought style is a distinctive and shared mode of thinking, based on a "tradition of shared assumptions, which are largely invisible to members and thus are rarely questioned" (Logue et al., 2016, p. 6). Different scientific communities have different thought styles (Clegg et al., 2020), "which leads perception and trains it and produces a stock of knowledge" (Douglas, 1986, p. 12). Accordingly, Fleck's notion of thought styles has a largely sociological substance (Kuhn, 1962).

In comparison, our approach here builds on Hacking's more epistemological conceptualization of styles in which theorizing styles are "built on fundamental cognitive capacities" (Hacking, 2009, p. 27) and associated forms of logical reasoning that cut across scientific communities. Hacking (1992) developed his perspective motivated by figuring out the common styles of inferential reasoning that historically evolved within the sciences (Crombie, 1994) and as coupled to methodological innovations and developments such as statistical inference (Hacking, 1965). To put this in perspective, in Hacking's notion of styles (i.e., common ways of logical reasoning), what we need in order to understand a theoretical claim are the presuppositions of the style of reasoning (e.g., we need to think and argue in a certain way or know the methods and the type of evidence of that style), whereas for Fleck (1935/1970), the focus is on identifying the "fund of knowledge" of the thought style, that is, the stock of socially shared assumptions and ideas of a particular thought collective.[1]

Drawing on Hacking's (1992) epistemological viewpoint, one of our main interests here is how, once established, a style of theorizing becomes autonomous and self-sustaining over time even when it is considered to lead to limited, weak, or unreliable theoretical claims. When a specific form of theoretical reasoning has progressed into a style, it has effectively become:

> What we think of as a rather timeless canon of objectivity, a standard or model of what it is to be reasonable about this or that type of subject matter. We do not check to see whether mathematical proof or laboratory investigation or statistical "studies" are the right way to reason: they have become (after fierce struggles) what it is to reason rightly, to be reasonable in this or that domain
>
> (Hacking, 1992, p. 10).

To say this differently, once accepted, styles are in the words of Hacking "self-authenticating," with their continuing use reinforcing prescribed ways of theoretically approaching and knowing phenomena in specific ways. This circularity explains why a specific style, such as the practice of null hypothesis significance testing that is associated with the propositional style, has remained "curiously immune" to refutation (Hacking, 1992) even when its contents and what it produces have been repeatedly challenged.

Because the general style has previously proven its worth, as a legitimate generator of theoretical knowledge, it continues to be used in the same form with only some

[1]Fleck (1935/1970) made other strong claims that are absent in Hacking's notion of styles. He reasoned that as the perception of facts is embedded in a certain thought style, what we consider as the truth about phenomena is a function of the thought style that has been accepted—there is no objective truth (Logue et al., 2016). Hacking (1992) rejects these claims and insists that there is a knowable reality and that we can make observational statements about phenomena independent of a particular style.

minimal modifications along the way. Periods of crisis, however, may bring a broader epistemic struggle (Hacking, 1992), creating an opening towards reflecting on a style and identifying ways in which it can be reformed and improved, replaced, or complemented with other ways of knowing (see also Kuhn, 1962). This is essentially also what we propose here for the supply chain field. The impacts for SCM research and practice of recent events, such the COVID-19 pandemic, the war in Ukraine, and climate and biodiversity crises, have triggered reflections on the future of research and knowledge production in SCM and related fields (cf. Knight et al., 2022). Besides such attention-grabbing phenomena, the current "theory crisis" (Cronin et al., 2021) embracing the entire business and management field, including supply chain research, additionally asks that we reflect on and rethink our approaches to theory in how we develop knowledge claims and collectively further our understanding of supply chain phenomena. To this end, we will use the concept of theorizing styles in two ways in our article. First, we problematize the historical prevalence of the propositional style within the domain of SCM. Second, we present a vision for the field that is characterized by a pluralistic approach to theorizing styles based on an inclusive epistemology and epistemic humility.

CHALLENGING THE HEGEMONY OF THE PROPOSITIONAL STYLE

The standard style of theorizing in the supply chain field involves researchers working from a covering theory (such as, e.g., the resource-based view or transaction cost economics) to formulate propositions or hypotheses with the aim of predicting and explaining supply chain phenomena (Flynn et al., 2020). As Wieland et al. (2024, p. 2) note, "there seems to be a belief in our discipline that [likewise] qualitative research should always produce rule-based propositions and that its goals should always be reliability, validity, and generalizability." We call this approach to theorizing the "propositional style." Please note that we use the word proposition in a different way to that typically used within the field of SCM. Within this field, the word "proposition" is generally used to describe explanatory and predictive statements that result from conceptual or exploratory research. These are later turned into hypotheses within theory testing research. Here, we use the word "proposition" in the broader, inclusive sense to describe generalized statements about the relationships between constructs or variables made to either predict or explain phenomena, which also includes research focused on hypothesis testing. This broader definition is consistent with the traditions of logical empiricism and analytical philosophy to which supply chain theorizing in the propositional style owes an unacknowledged debt—a debt we will make clear in this essay.

For the most part, commentaries on supply chain theory (e.g., Carter, 2011) have drawn upon classic definitions of theory from the wider management literature, such as Kerlinger (1973), Whetten (1989), and Bacharach (1989), which entreat supply chain researchers to draw hypothetical linkages between constructs or variables, backed up by theoretical assumptions for "why" a proposed relationship exists. Such assumptions, as the management scholar Whetten (1989, p. 491) argued, furnish the logic for explaining a proposed relationship and acts as "the theoretical glue that welds the model together." According to this dominant view, propositional claims backed up by theoretical assumptions are the "constituent elements" of theory (Whetten, 1989, p. 490) and across conceptual and empirical studies alike.

The historical roots of this conventional way of theorizing in SCM research (Schmenner et al., 2009; Schmenner & Swink, 1998) can be traced back to logical empiricism and attempts to make this approach suitable to scientific practice (Hempel, 1970). While the philosophical approach itself had been seen as too wound up in its own logic (and was thus abandoned), key figures such as Hempel and Dubin translated its key elements—that is, of subject-predicate (first-order propositional) logic concerning theoretical terms (constructs or variables) extending out of a set of theoretical assumptions and that ultimately aim to predict the occurrence of phenomena (as "effects")—into a common scientific language of theorizing. Dubin (1976, 1978), for example, extended these ideas into a "cycle" of theorizing. Dubin's basic idea was that new constructs and relationships are initially proposed based on inductive "theory building" or through logical speculation, but, once they have been formed, they suggest further possible theoretical extensions and applications that are geared towards further "elaborating," "qualifying," and "testing" the covering theory and its base propositional logic (see, e.g., Colquitt & Zapata-Phelan, 2007; Makadok et al., 2018).

When researchers follow this style in their articles in the SCM field, they similarly make verbal statements of a claimed relationship between constructs or variables representing supply chain phenomena. Such theoretical statements, as mentioned, are driven by a covering theory that is built around some fundamental assumptions or "axioms" (Ghoshal, 2005). Accordingly, such statements do not involve detailed and contextually accurate depictions of phenomena but rather ideal-typical and simplified representations that, based on the covering assumptions, pick out the relations of interest and conceptualize these in a concentrated format around

simplified premises and consequences (Cornelissen, 2024). Being in the first instance logical extensions of the covering theory, the value of such theoretically generated claims (i.e., the proposed constructs and relationships) rests, in turn, on their ability to "bridge" (Makadok et al., 2018) to empirical phenomena in the sense that such statements can be verified with data on how we find phenomena generally "behave" and when, as predicted, they tend to "occur" as "effects."

As such, the propositional style prescribes a way of theorizing phenomena whereby these are ultimately understood (i.e., explained and predicted) through the specter of a particular theory, its propositional logic, and associated theoretical assumptions. Rather than describing and mapping a phenomenon in its entirety, it is rather cast as another exemplary instance for the theory's propositions, whose assumptions are in many instances simply assumed to be warranted and to be generally applicable to comparable phenomena (Sutton & Staw, 1995). This general view of phenomena serving as grist for the theoretical mill risks, as Ghoshal (2005) famously argued, offering only a limited, one-sided view of phenomena. We similarly argue here that the propositional style holds SCM scholars back from fully explaining and understanding their phenomena of interest. Our concern here is not with the propositional style as such, as any style will have its limitations, but with its current hegemonic position in the field. To this end, we draw out some of its key limitations, before demonstrating how a plurality of styles may, in comparison, better serve knowledge production in the field.

Form over function

As a style, the propositional style comes with several inherent weaknesses and limitations in how it is commonly practiced, including in SCM research. The first weakness is that, as Cornelissen (2024) argues, it essentially privileges form over function. It essentially prescribes that the quality of "good" theoretical explanations or predictions rests on their conformance with what is generally considered to be an acceptable form or structure for theoretical statements. Specifically, it limits theoretical explanations to a specific "canonical form" of propositional relationships between constructs or variables that is furnished out of a covering theory (Cornelissen, 2024). For example, supply chain scholars have been advised that "[a] good rule of thumb ... is that if you cannot draw a coherent box and arrow diagram to capture the theoretical relationships presented in your paper, you probably need to revisit and refine your theorizing" (Ketchen & Hult, 2011, p. 16).

This problem should perhaps not have come as a complete surprise. Hempel (1969/2001) had in fact already warned of the dangers of being preoccupied with the internal principles of a theoretical apparatus and of considering phenomena strictly in terms of "variables, as markers of empty shells into which the juice of empirical content is pumped" (1969, p. 61). More recently, the philosopher of science Nancy Cartwright (1999) has repeatedly criticized the propositional style for offering a formulaic "vending machine view" of theory, a metaphor that captures the formulaic and self-referential structure of its theorizing style that, she argues, runs counter to the practice of theorizing and to how genuinely relevant and insightful knowledge is being produced in scientific research (modern day physics being her reference). As she writes, "you feed it input in certain prescribed forms for the desired output; it gurgitates for a while; then it drops out the sought-for-representation, plonk, on the tray, fully formed, as Athena from the brain of Zeus" (Cartwright, 1999, p. 247).

This vending machine metaphor is provocative, not least as it appears to literally reflect current prescriptions for theorizing in the fields of management (Makadok et al., 2018; Thatcher & Fisher, 2022) including SCM research (Handfield & Melnyk, 1998). Indeed, in a recent editorial in the *Strategic Management Journal*, Makadok et al. (2018) offer a "taxonomic system" as a practical guide towards making a contribution to theory, which starts by providing a set of research questions as "inputs" into the system, working through the six "levers" of the system (the mode of theoretical reasoning, the level of analysis and understanding of the phenomenon, causal mechanisms, constructs and variables, and boundary conditions) and which, when a set of ideas has been taken through these operational steps, produces as theoretical outputs "a set of outcomes in the form of explanations, predictions, or prescriptions" (Makadok et al., 2018, p. 1530). Despite their good intentions of deconstructing the theorizing process for authors, this editorial and indeed others (Handfield & Melnyk, 1998) inadvertently reinforce a preferred syntax for the structure of theories and an internal proposition-based "calculus" (Suppe, 1989) for theory development.

The usual stalwarts

A further limitation is that, as part of the cycle of theorizing (Dubin, 1976, 1978), the development of any theory tends to evolve in a largely autonomous or "self-absorbed" manner (Suddaby, 2014, p. 408). The cycle propagates the endogenous further development of a theory based on its distinct theoretical assumptions that

effectively shields it from other theories, even in instances where there is obvious overlap. This pattern is clearly visible in the application and "use" of theories in SCM research over time, as well as in the way in which efforts are geared towards further developing, extending, and testing any given theory as a way of claiming a "theoretical contribution" (Carter, 2011). As a result of this dynamic, the same usual suspects, such as transaction cost economics, agency theory, and resource-based view, get mobilized over and over again, and to the extent where their habitual use may override other concerns (such as the ability of a theory, or a combination of theories, to maximally explain a particular phenomenon). There is also the related concern that with each theory running its own course, they are, as mentioned, hardly pitted against one another, "putting them at risk through strong inference tests, revising them as indicated by the obtained results, and setting them aside when they prove inferior to competing theories" (Edwards, 2010, p. 616). In addition, as Wieland (2021) has powerfully argued, by centering on any particular theory in this way, we miss the opportunity to evolve our thinking of supply chain phenomena; for instance, by comparing and contrasting theoretical inferences as we gradually adapt our understanding of their complexity.

The full picture?

A further limitation is that the propositional style has inherent limits to its inferential power that may lead it to fail to capture, let alone then fully explain or predict, important phenomena in the real world (whereas one could argue it may adequately cover controlled experimental scenarios or simple statistical phenomena). As a singularly focused theoretical inference (as a proposition or hypothesis) that is derived from base assumptions that are "set," it may fail to capture the inherent complexity and dynamism of many phenomena (Wieland, 2021). Some aspects of phenomena may also remain out of sight because they do not "fit" the assumptions and propositional logic of any of the prevailing theories that we use in this way (Hambrick, 2007). In fact, these points together suggest as a real risk that for many phenomena, the propositional style of theorizing may radically underrepresent the constitution and dynamics of phenomena (Wieland, 2021) and to the extent that the generated results—such as the theoretical predictions or explanation that we form—may well turn out to be false positives (false hypotheses that are accepted as true) (Cornelissen, 2024).

Years ago, the econometrician Leamer (1983) already warned of the dangers of exclusively relying on a propositional style. Criticizing the myopic view of phenomena that it leads to, he urged his colleagues to find alternate ways to study their phenomena of interest in order "to know what inferential monsters lurk beyond our immediate field of vision" (Leamer, 1983, p. 39). Likewise, philosophers of science have warned over the years about relying on this "received" view of theory and theorizing coming out of logical empiricism (Cartwright, 1999), convincingly arguing that if we continue to see this style as the be all and end all of theorizing, it will leave substantial inferential "distances" or "gaps" (Bird, 2021, p. 974) given the complexity of social science phenomena. To understand why this is the case, it is instructive to bear in mind that the propositional style bears the imprint of logical empiricism in how it presumes law-like relationships in phenomena, such that it can subject a phenomenon to a single covering theory (as it is presumed to act in regular ways consistent with the theory's fundamental "axioms"), and whose propositional logic, in turn, can fully predict its occurrence (as an "effect"). But, as Cartwright (1999) shows, such a propositional calculus may work to a degree for some theoretical laws in classic physics (such as of motion) on which logical empiricism was modeled (but not modern physics), yet cannot stand as a universal let alone reliable model for complex social phenomena (Bird, 2021), which "has few to no laws to connect the theoretical terms to each other" (Borsboom et al., 2009, p. 137). Yet, despite these warnings, the propositional style has continued to rule thinking about theory and theorizing in the supply chain field (as it has elsewhere) and not just as a particular style of argument that strings assumptions and inferences together but effectively as an overarching epistemology.

We need to realize, as we have highlighted, that this style however "has inherent limitations as a mode of reasoning and harbors significant potential for error and even more so when, following the classic syntactic view of scientific explanation, it is generalized into the preferred form that *all* theory and theoretical explanations should take" (Cornelissen, 2024, p. 9). The style is epistemologically so predominant in the supply chain field that it has oftentimes led to an active "restyling" of other styles, such as a refashioning of interpretive grounded theory or discourse analytic approaches into a propositional form (see Wieland et al., 2024). To illustrate, the success of qualitative theory building approaches such as the Gioia or Eisenhardt "methods" derives largely from their consistency with the propositional style and their alignment with the mentioned Dubin (1976, 1978) cycle. These approaches lead to inducing new constructs and propositional relationships, which, as Gioia et al. (2013, p. 25) argue, "are not paradigm-bound" but form the core

of any theoretical contribution. This is, however, overtly an epistemological claim that ignores the contributions of other accepted styles of grounded theorizing, including interpretive, hermeneutical, or critical ones (Charmaz, 2014), or, as in the case of the Gioia method, refashions such grounded theory building—in terms of language and epistemic goals—in terms of the predominant propositional idiom (Cornelissen, 2017).

Having problematized the propositional style, we can see that there are strong grounds to question its hegemonic position within the field of SCM. This is not to say that it has no value but to challenge its privileged position within supply chain scholarship. We now outline a vision for the field in which the propositional style is simply one style among others.

FROM HEGEMONY TO PLURALISM FOR BETTER KNOWLEDGE PRODUCTION

So far, we have emphasized the limits of the propositional style of theorizing and have suggested that *by itself* it does not give the SCM field enough of a sound and reliable understanding of phenomena. It leaves, as mentioned, fundamental inferential gaps or distances in our conceptualization and understanding of phenomena. Real-world phenomena, such as the complexity of supply chains, are themselves not limited to conditions, characteristics, or effects to be predicted, and certainly within SCM research, phenomena can, as the past record shows, be usefully constructed, and, in turn, understood, in multiple, alternate ways (Wieland et al., 2024). Simply put, the privileging of the propositional style limits the range of what we understand phenomena to be and what, in turn, we can say about them, at the expense of *what else* we know goes on within and around supply chains (see Table 1). This leads us to the suggestion of the value for the supply chain field of the combined use of multiple, alternative theorizing styles.

The first part of this section elaborates on this point by describing and illustrating two alternatives to the propositional style: the *perspectival* and *provocative* styles of theorizing (Cornelissen et al., 2021). These styles provide legitimate alternative bases for supply chain theorizing that, we suggest, are (more) consistent with the sentiments behind lesser used (diverse) methods, perspectives, and approaches that have been called for in SCM research, such as, for example, discourse analysis (Hardy et al., 2020) and critical engaged research (Touboulic et al., 2020). By articulating the perspectival and provocative styles as legitimate alternative styles of theorizing, our article will, we hope, help the field to "unlock" greater theoretical and methodological diversity in SCM research. For SCM theorists new to perspectival and provocative styles of theorizing, a key challenge will be aligning theorizing styles in terms of their core components, namely, epistemic goals, approaches to making inferences and reasoning, and the criteria that frame how well those goals are achieved and the value of the theoretical contribution. These components therefore structure the following discussion.

Alignment of theorizing styles and desired epistemic goals

It could be said that each supply chain scholar approaches their theorizing with a particular sense of what they hope will be achieved and gained as a result of their theorizing efforts, based on the knowledge outcome or impact they believe is most desirable. For some scholars, the desired knowledge outcome is to advance the field's ability to fully, comprehensively, and accurately explain and predict a supply chain phenomenon. It makes sense for such scholars to theorize using the propositional style that, as has been discussed already in this article, is characterized by the goal of building ever greater and more accurate explanations and predictions of supply chain phenomena. However, other supply chain scholars are likely to be driven by different knowledge interests. Scholars working from assumptions rooted in, for example, the interpretive tradition (see, e.g., Darby et al., 2019), or the critical tradition (see, e.g., Touboulic et al., 2020), will likely be driven by different knowledge interests. For interpretive scholars, this is likely to be, broadly, a desire that their work contributes to the scholarly community a much deeper or alternative reading of the circumstances and meaning that constitute supply chain actors' particular lived reality (ies) and experience(s). For critical scholars, this is more likely to be, broadly, a desire to help the community "see" the problematic structures and systems (for example, ideological, or political) that produce marginalization, exclusion, and suppression in the supply chain and/or to energize the discussion in ways that can achieve practical change and emancipatory reform. Such alternative knowledge interests (i.e., which do not exclusively strive to objectively *explain* and *predict*) warrant alternative and aligned approaches to reasoning and to putting forward knowledge claims in a particular written form (i.e., which together constitute a particular style of theorizing).

Two examples of styles of theorizing that are relevant for supply chain scholars working from the interpretive and critical traditions, respectively, are the *perspectival*

TABLE 1 An overview of alternative theorizing styles.

Style of theorizing	Propositional	Perspectival	Provocative
Epistemic goal *What is this style of theorizing trying to do for supply chain management knowledge?*	Explanation To better explain and predict important supply chain phenomena in terms of causes and effects related to underlying structures and mechanisms. Strives towards a full explanation of a supply chain phenomenon.	Interpretation To foster new/renewed and deeper readings of supply chain phenomena based on changes/developments in the historical/social context.	Emancipation To strongly critique a current situation regarding theorizing and practicing supply chain management, or default assumptions, on the basis of failing to live up to certain ideals and values, and to outline a case for an alternative, better way.
Theoretical language *How does this style of theorizing characteristically pursue its epistemic goal and legitimate its knowledge claims?*	Formally acknowledges and seeks to build on existing theories that have already been established in the field as key theoretical resource. This is applied to a relatively well-established "topic". Adopts a formal, analytical, detached tone to reflect the researcher's independent and objective stance. Characteristically constructs arguments in terms of hypotheses or propositions (explicitly stated or implied) that claim how and why linkages between constructs or variables exist.	Uses conceptual resources (concepts, ideas) in novel and creative ways to stimulate the recontextualization of supply chain topics and to provide alternative and deeper meanings that are situated in current social realities. Is inherently reflexive, asking why we think of topics in particular ways and inherently open to producing alternative conceptualizations to re-orient a current line of inquiry or to introduce new lines of inquiry based on changes in the wider social context.	Invokes ideals and values to problematize received knowledge and approaches, exposing the political realities and constraints, and highlighting previously unseen issues (e.g., of marginalization, exclusion or suppression of certain supply chain actors) as a means towards imagining a future alternative (utopia) that can act as a theoretical referent and call for action. Adopts an active and critical tone reflecting the embeddedness of the researcher in the research topic.
Nature of the theoretical contribution *What does a valid theoretical contribution to supply chain management look like in this style?*	Provides a more precise explanation of a supply chain phenomenon based on the articulation of statements that demonstrate logical associations between relevant and precisely defined constructs. Precision can be evaluated in terms of key boundary conditions and qualifications of the propositional relationship (e.g., who, what, where, why, when, or how as per Whetten, 1989).	Provides a convincing account of the limitations of received ways of thinking about supply chain phenomena, in line with historical and social contexts. Offers a new way of thinking that is clearly differentiable from prior theorizing and is fruitful in what it conceptually offers and opens up as directions for future research.	Similar to the perspectival style but is also written and constructed in such a way that it has the potential to influence scholars/practitioners to "see" their supply chain phenomena of interest differently and to motivate them to change their action/research practices in the interest of emancipation and reform.

style and the *provocative* style (Cornelissen et al., 2021). The perspectival style of theorizing will be particularly relevant for scholars who find themselves troubled by current/dominant conceptualizations of supply chain phenomena, questioning whether they sufficiently reflect the meaning of supply chain actors' present-day realities, or who find themselves wondering why the field thinks of topics in certain ways. An excellent illustration of such reflections on current conceptualizations, characteristic of the perspectival style of theorizing, is Wieland's (2021) *JSCM* article on "dancing the supply chain." The author is provoked by the large, existential crises that, he argues, are currently "ignored" in SCM research and that are not well-served by the conceptualizations of SCM that currently underpin supply chain theory (Wieland, 2021).

In this vein, the *perspectival* style is characterized by the openness of the scholar to alternative interpretations and to re-conceptualizations of supply chain phenomena. Perspectival theorizing is therefore valuable for its efforts at *re-framing* and *re-interpreting* supply chain phenomena, to articulate alternative ways and means to think about topics in order that supply chain knowledge can

better reflect and capture present-day experiences of managers and stakeholders. Wieland (2021) is an excellent recent example of such efforts to re-frame and re-interpret the nature of SCM. Using panarchy theory to problematize narrow economic and managerial approaches to SCM, Wieland (2021) systematically reconstructs and reframes the supply chain system as a social–ecological system.

As an alternative to the perspectival style, the *provocative* style of theorizing will be particularly relevant for scholars who wish to surface and expose the way in which SCM systems and practices create oppressive realities for (certain) supply chain stakeholders and, therefore, to challenge the hegemonic values, ideals, and beliefs that systematically sustain such structures. A useful illustration of this epistemic interest is the work by Glover (2020), which focuses on the negative consequences of SCM practices for marginalized and non-traditional supply chain actors, in this case, dairy farmers and the communities of which they are a part. Through her work, Glover (2020) reveals the power dynamics at play in "sustainable" food supply chains and UK farmers' everyday experiences of exclusion, rural community division, food poverty, and personal feelings of shame, anger, and resentment.

How well efforts to theorize in the perspectival or provocative style achieves its knowledge interests, however, is partly a function of the approaches for making inferences and reasoning that are chosen, and, of course, their relevance for the particular epistemic goal.

Alignment of theorizing styles and approaches to making inferences

Perspectival and provocative theorizing styles differ from the propositional style in that they reflect a more involved position and role for the researcher, rather than seeing themselves as a detached, neutral, "objective" member of a research community who is theorizing phenomena "over there." This involved approach to research might be seen as the means by which research can get close to and within the layers of meaning that constitute experiences, as in the interpretive tradition of *perspectival* theorizing. Or, the supply chain scholar might see themselves not just as a researcher but as a personal and active member of the community or society they strive to reform, as in the critical tradition of *provocative* theorizing. This positioning naturally has implications for the approaches to reasoning (and indeed the methods for gathering data with which to reason) as well as to communicating with the scholarly community through how scholars write and structure their article. This therefore prompts them to be confident in selecting methods of data-collection, or approaches to conceptual argumentation, that are consistent with their knowledge interests.

A hallmark approach to reasoning within the perspective style of theorizing, with its epistemic goals of *re-framing* and *re-interpreting* supply chain phenomena, involves the researcher working hard to convincingly demonstrate the limitations of existing conceptualization (s) in terms of present realities, as well as to create new meanings of the topic that are historically and socially situated (Cornelissen et al., 2021). This is often done through the use of alternative, novel conceptual resources (sets of ideas and concepts), which are also then offered to the community as fruitful for supporting further knowledge development in the same vein. Wieland (2021) is a useful illustration of this form of reasoning in the perspectival style. As mentioned, the author exposes and challenges the key assumptions and root metaphors underpinning the mainstream discussion of SCM and then elaborates on how panarchy theory, as a relevant, novel, and fruitful alternative conceptual resource, can re-orient the discussion of supply chains towards a multi-level and inter-connected view of supply chains as social–ecological systems.

The provocative style of theorizing uses approaches to reasoning that are similar to those described in the perspectival style but with modifications that better reflect the provocative style's epistemic goal of critiquing assumptions that are seen to lead to problematic and unfair outcomes, such as marginalization and suppression. Further, the provocative style differs from the perspectival style in that it strives to create change by reasoning to create a normative vision of the future that can act as a theoretical referent, as well as a basis for action and change (Cornelissen et al., 2021). A useful illustration of this style of theorizing in the form of conceptual work is Touboulic and McCarthy (2021). Through hard-hitting descriptions and provocative rhetorical questions, they strive to systematically unpack the problematic structures and "detrimental implications" of existing sustainable food systems and the narratives that purport to improve them. In doing so, they construct a new imaginary based on a set of foundational principles (recontextualization, re-politicization, and relationality), which is both a theoretical contribution and offered as a referent for future action and reform.

Alignment of theorizing styles and criteria for assessing the value of the contribution

Using perspectival or provocative styles as the basis for theorizing means that the criteria a scholar should use to

guide, reflect, and self-assess their theorizing efforts and their resulting theoretical contribution will necessarily differ from traditional criteria to determine "good" theory, which naturally reflect the hegemony of the propositional style of theorizing. The nature and quality of a theoretical contribution produced in the perspectival or provocative style will differ from a theoretical contribution in the propositional style. This therefore identifies for the scholar different markers for assuring the "quality" of their theoretical output, if they are theorizing towards different (non-propositional) epistemic goals.

Specifically, if a scholar is theorizing in the perspectival or provocative style, they are generally less occupied with traditional criteria of validity and reliability, because such criteria are less relevant if one's theorizing efforts are not guided by a desire to explain and predict supply chain phenomena. Instead, if a scholar is theorizing in the perspectival style, and are guided by the epistemic goal of *re-interpreting* and *re-framing* supply chain phenomena, then the scholar should be most concerned with, for example, ensuring that the limitations of existing conceptualizations for reflecting the lived realities of supply chain stakeholders are clearly, coherently, and convincingly reasoned and spelled out to distinguish an alternative conceptualization as promising and plausible, and as meaningfully different from existing conceptualizations. To re-orient sustainable SCM theory from less harmful to *regenerative* social–ecological systems, Gualandris et al. (2024), for example, systematically distinguish between the conceptualization of sustainable supply chains as *harm reducing* and a re-conceptualization of sustainable supply chains as *regenerative*, in terms of three key principles (proportionality, reciprocity, and poly-rhythmicity) that can help to generate and conceptually structure future research on sustainable supply chains.

If a scholar is theorizing in the *provocative* style, guided by an epistemic desire to provoke other scholars to "see" supply chain phenomena differently, to drive emancipatory action and reform, they are likely to be more concerned with the ways in which their writing can most effectively express and argue for their critique in order that they provoke the reader to be motivated to think and act differently. Glover (2020), for example, tells stories of the researcher's embedded experiences of dairy farmers' lived realities in the form of vignettes. This creates an immersive reading experience that, as a text, works to engage and "provoke" supply chain scholars to reflect on the unintended consequences of retailers' SCM practices for farming families and communities and the ideals and assumptions built into existing SCM knowledge structures more broadly. A key contribution of Glover's (2020) theorizing is therefore in provoking readers to reflect on, acknowledge, and question key values in extant SCM theory that sustain the systems that serve some supply chain stakeholders while suppressing others. This is *in itself* a valid and important theoretical contribution based on the provocative style of theorizing.

Producing better knowledge through using multiple styles

We have outlined the perspectival and provocative styles of theorizing as alternatives to the propositional style because, we argue, a pluralistic system of knowledge production that relies on an equal, balanced use of multiple theorizing styles likely leads to *better* knowledge about the field's phenomena of interest. First of all, a pluralistic system based on multiple styles of theorizing leads to better knowledge by joining up efforts—across styles—in pursuit of a common epistemic goal where that is shared between them. To this end, Cornelissen (2024) and Cornelissen and Kaandorp (2023) recently argued that aligning propositional, process, and configurational theorizing styles (all styles that are based on the epistemic goal of explanation) allows researchers to form drastically more probable causal explanations of phenomena. Hence, for the epistemic aim of explanation and prediction, such "triangulation" offsets the threats to validity and inferential limits that come with relying on one of these styles only, such as the strong likelihood that by following the propositional style in isolation, it generates false positives. To this point, Cornelissen (2024, p. 14) argues that researchers might through such triangulation gain "confidence that, on the back of their sustained triangulation efforts, there are no better alternative explanations of a phenomenon in logical space; that is, that the most plausible alternatives that could be formulated by all intents and purposes have been formulated."

Besides triangulating towards a common epistemic goal, scholarly fields that allow for multiple theorizing styles that represent multiple epistemic goals will simultaneously expand the bases on which a phenomenon is covered and understood. When different styles involve different epistemic aims, such as in our discussion above, they effectively expand understanding and keep thought moving. Importantly, they also make scholarly communities inherently more reflexive of the knowledge claims that they make. Touboulic et al. (2020) illustrate this point for the supply chain field, highlighting how critical research not only expands our modes of knowing about global supply chains (into experiential knowledge, context, process, and performativity), but when compared with traditional theorizing (predominantly following the propositional style), it makes supply chain researchers

inherently more reflexive about the conceptions of "control" and "voice" that are tied into such conventional accounts.

Outside of the supply chain field, there are many examples that attest to the importance of having an ecosystem of knowledge production that features multiple styles with alternate epistemic goals. One particularly prominent example is the recent Lancet commission on women and cancer, a groundbreaking piece of work that combined multiple styles of theorizing (including propositional, process, configurational, and various critical styles) to offer a comprehensive, global view of the unique difficulties that cancer presents to women across different societies (Ginsburg et al., 2023). The work is notable for how it generates reflexivity within the health sector (calling for a feminist agenda) about the unequal treatment of women and in debunking the historically mindless use of an evidence-based propositional logic that, due to socio-cultural and physiological differences with men, results in an estimated 800,000 women worldwide dying needlessly every year because they are denied optimal care. As illustrated with this example, having a scholarly field populated with different styles of theorizing that are used alongside one another thus matters a great deal.

The need for an inclusive epistemology for "true" pluralism

Readers may object to our suggestions that there is a lack of pluralism in the supply chain field, citing specific examples of theorizing efforts consistent with the perspectival or provocative styles we have outlined. However, we urge readers to reflect on the overarching epistemic goal towards which these efforts are working. We contend that interpretation and emancipation are oftentimes, when they are used within SCM, predominantly valued as *intermediate* epistemic goals and as steppingstones on the journey towards generalizable explanations via propositional theorizing.

Currently, theorizing in the non-propositional style is often considered as merely exploratory work that can feed future propositional theorizing: it derives its legitimacy from its potential to contribute towards theory testing research by providing the initial theory or theoretical ground for creating hypotheses (in line with Dubin, 1976, 1978). In some cases, this is done explicitly with interpretive and emancipatory theorizing producing what the field calls "propositions" (i.e., provisional explanatory and/or predictive statements). In this way, SCM work reflects broader management ideas that equate "mature" theory with quantitative research in the propositional style and "nascent" theory with interpretative qualitative research (Edmondson & McManus, 2007).

Within this construction of "methodological fit," a method such as discourse analysis, which might be used by interpretative or emancipatory scholars, can never produce a "mature" theory as it cannot and is not meant to produce decontextualized, generalizable statements that can be tested using quantitative methods. The characterization of the theoretical outputs produced by methods such as discourse analysis as merely "nascent" theory may, in turn, help explain why few supply chain scholars have so far responded to the call for greater theoretical and methodological diversity, including by those using discourse analytical methods (Flynn et al., 2020; Hardy et al., 2020).

We can see evidence of this "steppingstone" approach to "methodological fit" in which the epistemic goal of explanation is privileged over the goals of understanding and emancipation in the sections on further research within published articles that are written in the perspectival and provocative styles. Rather than calling for more work in the same theorizing style, these articles often call for their "nascent" theories to be turned into "mature" theories through theory-testing research using quantitative methods. An example of this is Gualandris et al.'s (2024) exemplary perspectival study on regenerating social–ecological systems through transformative SCM strategies. Although this is an exceptional example of theorizing in the perspectival style, the authors do not call at the end of their article for more perspectival theorizing to further deepen our understanding of regenerative supply chains but rather invoke Edmondson and McManus (2007) to suggest further research using quantitative methods to turn it into a "mature" theory. Within a genuinely pluralist system of knowledge production, perspectival (and provocative) theorizing would be seen as a stand-alone means of developing theoretical insight, and it makes no sense to designate such outputs as "nascent" or "mature."

The same steppingstone approach, with the sought after goal being the formulation of a propositional set of relationships between constructs (as the canonical view of "theory"), can be observed in the way in which middle-range theorizing is often understood. In a recent article, Craighead et al. (2024) propagate the use of such an approach as a way of developing more context-specific theories in SCM through a combination of inductive, deductive, and abductive reasoning. The end result of these conjoint steps, they argue, is a middle range theory of firmly established propositional relationships and causal mechanisms that "explain some but not all organizational phenomena (e.g., decisions, actions, outcomes) within some but not all conditions" (Craighead

et al., 2024, pp. 1–2). While such an approach is more contextual, phenomenon-driven, and breaks with the universal, "grand" ambitions of the conventional logical empiricist program (Merton, 1968) in the steps that are proposed (see Craighead et al., 2024), it still abides by its core propositional idiom and explanatory goal as the preferred and only mode for theory. As such, its suggested reform is too piecemeal and limited in light of the recognition that "propositional logic is ... too limited a register by itself to [fully] explain many phenomena" (Cornelissen, 2024, p. 1), let alone understand them in alternate (non-explanatory) ways.

Given the limitations of the propositional style we have outlined, a pluralism that gives space to alternative theorizing styles, but which nonetheless privileges the epistemic goal of generalizable explanations, is a limited pluralism—existing within, and reinforcing, the hegemony of the propositional style. By contrast, our article advocates a form of pluralism of theorizing styles that is based on an inclusive, pluralist epistemology (Longino, 2002) that values equally, and on their own terms, multiple epistemic goals, with none being privileged or subsuming the others. In this context, theorizing in the interest of alternative epistemic goals, such as interpretation and emancipation are, alongside propositional theorizing, equally legitimate progenitors of supply chain theory.

As philosophers of science have long suggested, the direct correlate of such a pluralistic system of knowledge production (Cartwright, 2020; Longino, 2002) is that individual researchers recognize the existence and value of alternate theorizing styles, including ones that they may not use themselves. Central to a genuine form of pluralism in the supply chain field, therefore, is the principle of epistemic humility, which means that, as authors and as reviewers of each other's work, we recognize the value of different styles of theorizing and appreciate and judge them for what they set out to do and bring to the field of SCM. The guiding idea here is that they do not debunk such alternate styles as "not science" or as anyhow inferior in its logic or epistemic goal to what they do themselves. Being reflexive and humble in this way (rather than overbearing), they yield space to other styles and methods as part of the broader system of knowledge production (Longino, 2002). While such a stance is perhaps easy enough when one works in separate subcommunities and is not directly confronted with other styles, it is often tested in the review process, where such humility asks that individuals, as reviewers, read and evaluate articles for what style-wise they are and aim to do—and mobilize style-relevant criteria to judge the article, rather than fall back on their own (often implicit) assumptions about theory consistent with their own preferred style and epistemic goal. Adopting such humility is no doubt easier said than done (given the historical legacy of the propositional style), but embracing this ideal for ourselves, and striving for it the best we can, will strengthen and expand our understanding of phenomena and stimulate us to remain reflective and open to novel angles and ideas along the way.

CONCLUDING THOUGHTS

In the previous section, we have offered a picture of what a scholarly field such as SCM might look like when it functions effectively as a "healthy" pluralistic system of knowledge production. The general idea suggests that if knowledge production is tilted too much in the direction of a particular style, as effectively the only prevailing epistemology, the "ecosystem" is negatively affected—and which we have seen play out for specific scholarly fields across the social sciences (e.g., social psychology). Indeed, the credibility crisis engulfing many social science fields, including SCM research (Pagell, 2021), is one that, we argue, is not only a reflection but also the direct outcome of the privileging of the propositional style at the expense of other styles and modes of knowing.

But, if we stay with this ideal and largely accept what it conveys, it also raises questions about how scholarly fields evolve, and whether they can be organized in this pluralistic manner, and how we might collectively join our efforts towards better understanding our phenomena of interest? Can pluralism be organized for, and, as in the case of the Lancet commission on women and cancer, be programmed? Can individual researchers in fact be trained and socialized into the use of alternative styles of theorizing? And what is the role of universities, professional associations, and journals in fostering such a pluralistic eco-system of knowledge production?

We do not have the space here to address all these questions, which each by themselves warrant further detailed investigations and discussions. We build on the suggestions already made in relation to individual researchers and offer additional reflections on editors of journals in the supply chain field to consider the role of journals in promoting an inclusive, pluralist approach to knowledge production. Journals not only reflect the research that is done in scholarly fields such as SCM but actively drive the system of knowledge production within those fields (Pflueger et al., 2024). Currently, the SCM field is characterized by a knowledge production system that privileges the explanatory epistemic goal and ensures the hegemony of the propositional style of theorizing. This system produces a "limited pluralism," with alternative theorizing styles accepted as long as they ultimately contribute

towards some kind of explanatory theorizing. To transition towards a more pluralist knowledge system based on diverse epistemic goals, there is a requirement that editors of journals recognize this role and have, as individuals, not just the kind of epistemic humility that we highlighted but furthermore feel that they have, as editors, a calling or mandate to foster a more pluralistic epistemology for their field. We realize that not every editor coming into a journal (and "serving their term") may feel this way, but when they do, there is the potential to shape and influence, as far as their journal goes, the scholarly field. One way in which they may then influence the field, as *JSCM* seems to do, is by actively calling with editorials or special issues for work based on alternative styles of theorizing (Wieland et al., 2024) or by creating editorially an open, experimental space for new methodologies and theoretical approaches, such as panarchical theorizing (Wieland, 2021) or critical engaged research (Touboulic et al., 2020), which may in time contract into an established style of theorizing (Hacking, 1992).

Theory and theorizing are central to supply chain research. In this essay, we have approached the topic by focusing on styles of theorizing, coherently ordered modes of theoretical reasoning consisting of a specific language and epistemic goal. We have highlighted how SCM research has, like other business and management fields, been historically dominated by one such style: the propositional style. Demonstrating the limits of this style, particularly when it is privileged over others and equated with theorizing right and proper, we have called for a more pluralistic system of knowledge production. Such a system is characterized by multiple theorizing styles being used and operated alongside one another in a coordinated or co-oriented manner towards gaining a better understanding of supply chain phenomena. Furthermore, it is hoped that legitimizing alternative styles of theorizing in this way will support SCM scholars who are motivated by knowledge interests and desires other than explanation and prediction. Often such scholars feel constrained in their confidence to use more diverse methods and perspectives by the (real or perceived) expectation that in order to produce "valid" theory, their theoretical outputs must conform to the propositional style, especially if they are PhD students or early career researchers.

As a final thought, we would close our article by adding our reflections on an important question that has been commonly asked in the field: Why do we rely so heavily on theories borrowed from outside the field and why do we so often use the same borrowed theories, such as transaction cost economics? We conjecture that this is to a large extent a result of the hegemony of the propositional style within supply chain scholarship. To produce work in this style, the same stock of covering theories is mobilized to develop propositional statements, as explanations or predictions (Craighead et al., 2024). Established theories such as transaction cost economics are therefore going to be more attractive and legitimate to supply chain scholars than responding to calls for "indigenous" supply chain theories. Further, such research will likely find it more challenging to get through the review process, with some reviewers not recognizing such theorizing work as sufficiently theoretical, particularly if the proposed theory lacks testable propositions. The hegemony of the propositional style therefore inhibits the diversity of theories and methods called for by past and current editors of this and other supply chain journals. Thus, to unlock the power of diversity, we propose that we first need to embrace the pluralism of allowing for and using different theorizing styles. Our vision for the field is one based on epistemological inclusivity and epistemic humility in which no single theorizing style is privileged.

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