

Towards a critical realist epistemology?

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Abstract

When critical realists consider epistemology they typically start from “epistemological relativism.” We find this position necessary, but we also find it insufficient because it lacks a critique of the highly unequal social relations among observers themselves—relations that shape the very production of knowledge. While it is indeed the case that all knowledge is fallible, it is also the case that all knowledge is *positioned*, with a particular standpoint. What is more, the *social power* relations between standpoints organize the production of truth in ways that produce systematic distortions. In this paper, we propose a critical realist social epistemology. We introduce feminist standpoint theory and postcolonial theory as our suggested interventions into critical realism and we use two case studies of existing work to highlight i) the social production of truth and the real, and ii) what is at stake for radicalizing epistemology in critical realism. In so doing, our paper emphasizes the epistemic complexities that continuously shape ontology, a commitment to subaltern voices or experiences, and a thorough interrogation of the relations between positions of knowledge production.

KEYWORDS

critical realism, epistemology, ontology, postcolonial theory, standpoint theory

1 | INTRODUCTION

When critical realists consider epistemology, they typically start from “epistemological relativism,” essentially the position that all knowledge is fallible, partial, and changeable over time. In the present article, we argue that this position is necessary but that it is also insufficient because it lacks a critique of the (highly unequal) social relations among observers themselves—relations that shape the very production of knowledge. Interestingly, while critical realism never ignored the observer or knowledge producer, we believe that its treatment remained limited by the original Bhaskarian aim of accounting for the intelligibility of the scientific experiment. In this formulation, the positionality of the researcher is (relatively) unproblematic. In his critique of positivism as an ideology, Bhaskar (1975) recognizes the active role of the scientist in experiments and acknowledges the social production of truth. He underscores the importance of scientific practices that set up the experiment and “close the system,” but he does not sufficiently take into account the positionality of the experimenter. If critical realism is to fully move from natural science to social science, and from experiment to experience, a much more robust consideration of knowledge producers and their social relations is required.

Accordingly, we propose a path towards a critical realist social epistemology. While it is indeed the case that all knowledge is fallible, it is also the case that all knowledge is *positioned*: it has a particular standpoint. What is more, the social power relations between standpoints organize the production of truth in ways that produce systematic distortions of reality (ideology). Grasping this point, far from a rejection of ontology, helps to extend the original promise of critical realism. This is both because social relations among knowers are *themselves* part of the real, and because only by considering questions of socially produced and historically embedded truths can we access the real in the first place (without falling victim to ideology). In this sense, just as we must avoid the “epistemic fallacy” of reducing ontological questions to epistemology, we must equally avoid the “ontic fallacy” of reducing epistemological questions to ontology. But without reducing one to the other, we must further avoid radically separating ontology and epistemology to begin with, recognizing instead their analytical interdependence and mutual co-constitution.

In this paper, we take up this task. We begin by critically reviewing critical realism's commitment to the triad of ontological realism, epistemic relativism, and judgemental rationality. We then provide an overview of feminist standpoint theory and postcolonial theory as our two suggested interventions into critical realism. To illustrate the saliency of our intervention we present two cases – i) on menstruation; ii) on Indigenous knowledge—where local, embodied, and historical knowledges are distorted by social power. These diverse cases bring our theoretical discussions into the realm of everyday epistemic contestations. They are used to exemplify the power relations among knowers and the experience of subjugated standpoints. We conclude by discussing what is at stake for critical realism in radicalizing epistemology and considering its relationship with ontology more seriously. In sum, we show that access to the real demands an attention to the epistemic complexities that continuously shape it, a commitment to subaltern voices or experiences, and a thorough interrogation of the relations between positions of knowledge production.

2 | EPISTEMIC RELATIVISM IN CRITICAL REALISM

Epistemological considerations occupy an underdeveloped place in critical realism (Archer, Bhaskar, Collier, Lawson, & Norrie, 1998; Bhaskar, 1975, 1979; Gorski, 2013; Lawson, 1997; Porpora, 2015; Sayer, 2000). After all, the great promise of critical realism has always been its

effort to foreground *ontology* against an overwhelming preference for epistemology in the positivist philosophy of science, one that tends to ignore (or take for granted) the nature of reality itself. One of the central claims of critical realism, as originally articulated by Roy Bhaskar in *A Realist Theory of Science* (1975) and *The Possibility of Naturalism* (1979), was that in so doing, positivist philosophers of science commit an “epistemic fallacy,” collapsing ontology into epistemology and thus reducing the real to our knowledge of it. As Bhaskar (1975, p. 36) explains: “The epistemic fallacy consists in the view that statements about being can be reduced to or analysed in terms of statements about knowledge; i.e. that ontological questions can always be transposed into epistemological terms.” If critical realists agree on anything, it is that they are opposed to the “epistemologisation” of being.

To properly understand critical realism's contribution here, we need to place it within the “holy trinity” that spells out its normative agenda for science: ontological realism, epistemic relativism, judgmental rationalism (Archer et al., 2016). Modifying Auguste Comte's sacred formula of positivism (“Love as principle, order as base, progress as end”), we could say that ontological realism provides the base, epistemic relativism the means, and judgmental rationality the end of science. Critical realism's claim is that science progresses towards the truth, but on the condition that it properly articulates the relation between the relativity of knowledge and the rationality of judgment. It is only when one assumes that scientists offer different perspectives on the *same* world that epistemic progress is possible. Ontological realism undergirds judgmental rationalism, which tempers epistemic relativism.

It is important to unpack each of the terms in this relationship. *Ontological realism* asserts that reality exists and operates independently of our awareness or knowledge of it. Although we can only have access to reality through paradigms, theories, concepts and methodologies, these do not constitute reality. Rather, they disclose it. To illustrate this point, Bhaskar (1975) makes a clear-cut distinction between the intransitive and the transitive dimensions of knowledge. While the latter refers to knowledge of the object, the former refers to the object of knowledge. One of the central tenets of critical realism, in its original formulation, is that “the intransitive objects of knowledge are invariant to our knowledge of them” (Bhaskar, 1975, p. 22). Indeed, our knowledge of the world varies historically. Epistemes come and go. Theories wax and wane. Methodologies change. But the world that they are designed to capture—the base—remains invariant (though technologies, of course, affect and change the world). As Bhaskar (1979, pp. 11–12) explains, “it is a condition of the possibility of science ... that such objects exist and act ... independently of their identification,” that they “exist and act independently of the knowledge of which they are the objects.”

Given critical realism's overriding concern to recover ontology, it is perhaps unsurprising that discussions of epistemology in critical realism are relatively thin. When considering epistemology, critical realists invariably start from a position that they call *epistemic relativism*. Essentially, this is the claim, unobjectionable in itself, that all knowledge is fallible, partial, and changeable over time. As Bhaskar (1979, pp. 62–63) puts it, “all beliefs are socially produced, so that all knowledge is transient, and neither truth-values nor criteria of rationality exist outside historical time.” This is, of course, nothing new for social scientists; but in the philosophy of science, the argument concerning the social, cultural, and historical variability of knowledge, acts as a scarecrow, keeping people away from this argumentation. However, critical realists are not afraid of relativism. They astutely observe that their commitment to ontological or transcendental realism actually *requires* a complementary commitment to epistemological relativism: precisely to the extent that the world is irreducible to mind, the relationship *between* mind and world is necessarily problematic (Bhaskar, 1979, pp. 5–6). According to Bhaskar

(1979, p. 12), this is why “changing knowledge of unchanging objects is possible.” At this point, Bhaskar’s position seems to converge with the consensus theory of truth, as defended by Jürgen Habermas (2003). Truth is always truth “for the time being” (*pro tem*).

If all knowledge is fallible, it does not, however, follow that all knowledge is equal. On the contrary, critical realists remain absolutely wedded to the notion that some knowledge claims are better than others, and that this is something we can actually discover—that it must be possible to adjudicate between knowledge claims with regard to their relative adequacy. In short, critical realism couples epistemic relativism with what it calls *judgmental rationalism*. Judgmental rationalism means precisely the ability to adjudicate among rival theory constructions and asserts that there are criteria for judging which accounts of the world are better or worse. But *how*, in a world of fallible knowledge, do we discover which construction is better? What is the procedure for theory adjudication? Obviously, epistemic relativism cannot, in itself, answer this question. Once again, Bhaskar partially adopts a Habermasian position. The assumption is that researchers will carefully consider the evidence and that they will be able to sort out truth claims through a rational discussion among themselves in which the “force of the better argument” will ultimately prevail. Only on this condition can we expect that as time goes by, the community of researchers will come closer to the truth and, therefore, to reality itself.

From a realist point of view, however, Habermas significantly underplays the ontological dimension of science in the way that he takes the consensus among scientists as an index of the truth (Vandenberghe, 2019). Critical realism thus reintroduces, with force, the referential dimension of truth. Judgmental rationalism only can temper epistemological pluralism when one assumes that the scientists do not only talk among themselves, but that they argue about the state of the world. It is only if we presuppose that they rationally discuss the *same* world and consider all the necessary evidence that they can arrive at a consensus. It is not because the scientists arrive at a consensus that we can presume that they have arrived at the truth. Rather, it is the reverse: it is because all the evidence points to the real and, hence, to the truth that they arrive at a consensus.

We thus recognize that the combination of ontological realism, epistemic relativism, and judgmental rationality leads to a coherent position in the philosophy of science. Nevertheless, we think that critical realism does not take epistemic relativism seriously enough. In particular, we suspect that the insistence on a world that exists independently of our knowledge courts the risk of committing the “ontic fallacy,” which is the epistemic fallacy’s mirror image: reducing epistemology to ontology instead of the reverse. We believe that the radical separation of epistemology and ontology is not tenable, and we question the distinction between the transitive and the intransitive dimensions of knowledge that sustains it. This latter distinction, it should be noted, was originally developed for the very specific purpose of accounting for the intelligibility of natural scientific experiments in the closed system of the laboratory (Bhaskar, 1975). Yet it has become a tenet of critical realism as such.¹ Accordingly, we propose an alternative articulation between our knowledge of the objects and the objects themselves. By taking seriously the positionality of the knower, we stress that epistemic positions are socially produced—and thus ontologically real in their own right. If we accept that knowledge is part of the real, that epistemological questions are contained within—but irreducible to—ontological ones, then we must recognize that social knowledge is unavoidably embedded in its object. And if, therefore, we wish to apply to ourselves as social researchers the same standards that we hold for the agents who are our objects, we must develop a *social* epistemology on par with critical realism’s social ontology (Fuller, 1988). In this regard, epistemic relativism remains a necessary starting point, but it is by no means sufficient. Going further, we argue that some epistemic

positions, emerging from some social locations, provide not merely a different, but potentially a more accurate, access to reality than others.

To make our case, we extend critical realist arguments to these social-epistemological considerations. As a metatheory of scientific explanation, critical realism is in search of causal mechanisms that explain why events happen and how they are brought about. Unlike standard positivist accounts that conceive of causality with Hume as a regularly occurring sequence of events (if x , then y), critical realism calls for explaining how generative mechanisms work and how they cause events.² Yet critical realism has not used its own explanatory framework to account for the production of scientific knowledge itself. By introducing generative mechanisms into social epistemology, we advance a new understanding of critical realism, drawing in particular from standpoint theory and postcolonial studies. Viewed as social epistemologies, these paradigms reveal what is missing from critical realism's own approach to epistemology, which centers relativism at the cost of theorizing power, inequality, and the "epistemic distortions" (Sweet, 2018) embedded therein. We pair our discussion of each paradigm with a case study of epistemic conflict drawn from existing work in that field. In each case, we show how a reflexive analysis of the social production of truth can actually *strengthen* realism and, indeed, make it more critical.

3 | FEMINIST STANDPOINT THEORY

While critical realism admits the fallibility and context-dependency of knowledge, feminist standpoint theory (Collins, 1990; Haraway, 1988; Harding, 1998; Harding & Hintikka, 1983; Hartsock, 1983; Mohanty, 1988; Smith, 1987; Sprague, 2006) poses a weightier epistemological critique. Like critical realists, feminist standpoint theorists challenge positivism. Unlike critical realists, however, standpoint theory posits that systemic inequalities are built into the foundations of science – standpoint theory, therefore, also endeavours to problematize the power dynamics of science itself. As Sandra Harding (1993, p. 69) argues, "the power dynamics of the knowledge production process are embroiled in the same power relations as the object of study." In general, then, feminist standpoint theory asserts that knowledge is constructed within a social location and historical context, that knowledge is always partial. Yet it goes further, suggesting that certain social locations – when politically activated – enable a fuller view of reality than other social locations, including those of scientists themselves.

Because feminist theory tends to be interested in theorizing from lived experience, standpoint theory has focused on the role of "the knower" in its interventions. As Joey Sprague (2006) argues, for critical realists, every knower has the same potential access to the known – there is nothing systematically organizing the relationship between knower and object of knowledge. For feminist standpoint theory, drawing on Marx and Lukács, positions outside the "relations of ruling" (Smith, 1987) enable a fuller, more accurate view of social domination because such positions can see beyond or underneath the ideology of the powerful. Standpoint theory argues that marginal structural positions have the potential to provide more reliable knowledge of the social world.

Standpoint theory's "situated knowledges" (Haraway, 1988) challenges presumptions of scientific objectivity, neutrality, and the ideological trick of "natural" social categories. Such an intervention – not dissimilar from Bhaskar's (1975) critique, actually – is *ontologically realist*; it necessarily presumes the existence of a real world "out there." Indeed, rather than suggesting that we are doomed to sift through layers of equally valid perspectives, standpoint theory is

committed to what critical realists would call *judgmental rationalism*—albeit a very different version—because standpoint theory insists that marginal subject positions can generate *better* theories of the social. Feminist standpoint theorists are therefore committed to making strong claims about the real world, claims that capture that world to varying degrees of accuracy. Standpoint theorists take this realist position even though they enter into these philosophical critiques through questions of epistemology, not ontology.

While realists have critiqued feminist and postcolonial theory for its insistence on epistemology over ontology, this insistence has been necessary under historical conditions wherein certain groups are denied the authority to know and denied access to the tools of knowledge production. What critical realists have largely ignored is that knowledge itself is organized by power imbalances. Indeed, for standpoint theorists, it is often science that creates these power imbalances, since it privileges “objective” standpoints, which are actually just social privileges: white, male, middle-class, able-bodied standpoints that masquerade as “objective” visions of the world (Haraway, 1997). For Sandra Harding, then, it is not that marginalized groups are inherently “better” knowers – rather, their lives are shaped by intersecting inequalities, forcing them to ask critical and causal questions about social power and science’s role in perpetuating it (Harding, 1993; see also Gillman, 2016).

Despite these points of tension between feminism and critical realism, however, we think that the latter’s combination of ontological realism, epistemic relativism, and judgmental rationalism may be reformulated within the framework of feminist epistemology. We have seen that Bhaskar combines a correspondence theory of truth with a consensus theory of truth. The realist dimension is essential for feminists, because notwithstanding their constructivism, feminists insist that structures of domination exist and that these very structures oppress and suppress the voices and positions of marginalized groups. Although critical realism refrains from introducing its causal apparatus into epistemological debates, we think that taking into account the relationship between the knower and knowledge can elucidate real causes and mechanisms of knowledge production. Further, Habermas’s consensus theory of truth is not only compatible with feminist epistemology, it has been fully incorporated into the latter by Lorraine Code (1991) and Helen Longino (2001). Feminists are particularly attentive to positions and voices from the margins that have been excluded from the debate. The question of whether marginalized groups can speak is inseparable from the question of whether scientists can or will listen, and if their claims will be taken as credible statements about the real world (Harding, 1998). These questions about credibility and the systemic inequalities built into knowledge production are key for a revised critical realist epistemology.

Issues of who can speak and who will listen also raise the question of judgmental rationality then, of how multiple perspectives are adjudicated. For critical realists, there are certainly differences between the quality of explanations. Feminist standpoint theory helps account for these differences. It does so by showing how the relationship between the knower and the object of knowledge shapes scientific theories themselves – and thus how exclusion from the center can facilitate a better explanation, since one can “see” and “feel” how power operates. This is a strategy of switching epistemic position in order to gain a fuller view of ontology (Decoteau, 2017; Sweet, 2018). For feminist standpoint theorists, then, better explanations are those that get deeper underneath power to see its mechanisms of operation *and* the ways in which it excludes certain groups from participating in knowledge production.

However, for critical realists, multiplicity or “splits” in perspective are often equated with the impossibility of producing scientific knowledge at all: that damning accusation of “relativism” (in the strong sense). This accusation occurs when social scientific arguments about the

causal determination of positions are not taken seriously. This need not be the case. Feminist standpoint theorists, after all, do not defend a relativist, but a *relationist* position (Gillman, 2016). The whole point of standpoint theories is to relate epistemic positions to social positions, to find out which positions have been excluded, to explain that exclusion in terms of causal mechanisms that make patriarchy the default position, to reintroduce excluded voices, to open up a more inclusive science. Certainly, then, the causal mechanisms that produce such silences are real, and their working needs to be properly analyzed to overcome the masculinist bias of science. It is for this reason that Dorothy Smith (1987) insists on starting inquiry with an “everyday” knower who crosses boundaries between the material and the conceptual (see also Naples & Gurr, 2014). A knower who is forced, by social circumstance, to live across social boundaries, more accurately sees where social differences are cleaved. This knower seizes a standpoint “outside the organization of social consciousness” (Smith, 1987) and uses it to make claims about power, about social divisions, about ideology. In this sense, feminist standpoint theory takes seriously the relation between knowledge producer and knowledge object, and in so doing, elucidates real social mechanisms and power structures.

3.1 | Case study: Natural and normal menstruation—Katie Hasson (2012)

Feminist standpoint theory thus suggests that recovering marginalized voices is not merely compatible with, but necessary for, the critical realist vision of science. Indeed, this includes some voices that are marginalized by science itself: standpoint theory shows that the latter—like all claims to authority—is constituted by power-laden mechanisms that need to be grasped as real in their own right. To illustrate this point, we introduce an example from Hasson’s (2012) work on scientific measurements of menstrual excess. Standpoint theory helps us understand how women’s situated and embodied knowledge about their own menstruation is subordinated in favor of the presumptions put forward by scientific objectivity, shaping what counts as “normal” menstruation.

Ideas and disease classifications often receive legitimation through the authority of physician and scientist recognition (Figert, 2017). In other words, ideas and diseases are deemed to be real by these experts and as a result they define the boundaries and realms of reality. Focusing on authority for the production of reality is salient as “authority is not only relevant for what people do but what people know” (Gieryn & Figert, 1986, p. 67). This type of “cognitive authority” works to “define, describe or explain bounded realms of reality” (Gieryn & Figert, 1986, p. 67). According to Gieryn and Figert (1986), “cognitive authority is evidenced by one’s acceptance-as-legitimate of the validity or utility of another’s definition, description or explanation of reality,” which is rarely challenged and is thus taken as a “picture of reality” (p. 67).

Writing in the tradition of standpoint theory, Hasson (2012) examines how “medical researchers work to distinguish between normal bleeding and a specific menstrual disorder – menorrhagia, which is sometimes called excessive bleeding” (p. 1729). Hasson argues that how we measure plays a major role in how we treat women, translating their complaints of heavy bleeding into medically legible problems that can be diagnosed, categorized, and treated. She argues that through specific ways of measuring, women and their bodies are constructed as objects for medical attention, which impacts how they participate in knowledge production (p. 1729). She looks at three ways of measuring menstrual excess to provide evidence for this.

To begin, Hasson turns to a 1966 study that set the gold standard for diagnosing menorrhagia. This study involved 458 German women who were used to calculate the standard

amount of blood loss per menstrual period. Drawing on the standards of normal and abnormal amount of blood loss set by the research with German women, researchers developed a technique to collect and directly measure women's menstrual loss. She writes:

Researchers using the 'gold standard' method directly access blood as the evidence of menstrual disorder and test this evidence against an objective, numeric standard. However, because the diagnosis relies on a measurement of blood content, rather than total menstrual volume, this method is predicated on the inability of women to differentiate between menorrhagia and normal blood loss based on their experiences of bleeding (p. 1732).

To understand this research, it is important to realize that while menstrual fluid closely resembles blood, it actually comprises a mixture of tissues and secretions from inside the uterus including water and mucus from the uterine glands, blood from capillaries feeding the endometrium, and the glandular tissue of the endometrium itself. This means that a person may have a lot of menstrual fluid, but not necessarily excessive blood loss. Doctors committed to the gold standard method would then ask, how could women know this? How could they know they have excessive blood loss, when it could just be that they have excessive menstrual fluid? So, women might be complaining about how excessive their fluid loss is—and this could be a problem for them and their daily lives—but is not taken as part of the objective measurement established in the gold standard method.

The consequence of this is that doctors were producing an idea of what “natural” and “normal” menstruation is. In other words, they were naturalizing a particular way that physicians saw women, their bodies, and how women saw their own bodies. In doing this, as Hasson (2012) argues, women were seen as unable to provide accurate accounts of their experiences—accurate, meaning, in line with what they thought was natural and objective. So why is this a problem? This is a problem because women's experiences with blood loss and their concerns about heavy periods did not match the diagnostic criteria for problematic blood loss (p. 1730). Their frequent complaints about blood loss did not fit with the “objective” measurement – and doctors would conclude their blood loss was actually rather light (p. 1730). It was a problem because it alienated women's subjective experiences, their problems with blood loss. Women and their bodily knowledge were positioned as unreliable (p. 1733).

By bringing women's experience back into science, we question the standard account of reality as an exclusionary one that represents women and speaks in their name, while actually silencing them. With critical realism, we can analyze the exclusion as a result of structures of social domination that impinge on science itself. Given that we want a stronger concept of science and truth, we need a robust analysis of patriarchy and other structures of oppression that causally impinge on the community of scientists and make them miss the truth.

4 | POSTCOLONIAL THEORY

Part of the contention of feminist standpoint theory, then, is that we *cannot* be relativistic about systems of global inequality like capitalism, patriarchy, and racism—and their epistemic effects. The knowledge production process is cleaved by power. Postcolonial theory (Gandhi, 1998; Mohanty, 1988; Said, 1978; Santos, 2014) has long insisted that not only knowledge, but all of the discursive relations that ground social practices, are structured by Western precepts that

iteratively and systematically cast the global South and Indigenous people as Others and irrational.³ Because colonial power is a “silent shaper” of how we know about, understand, and interpret the world (Go, 2016, p. 8), those epistemic distortions are undoubtedly part of the “intransitive” realm: Western epistemological violence is key to the causal forces of empire (Steinmetz, 2014). One of the central insights of postcolonial theory, then, has been that our procedures for knowledge production continuously reproduce this kind of violence, which, using Western language, is both ontological and epistemological.⁴ Consider this quotation from Frantz Fanon's (1952/1986, p. 90) text, *Black Skin, White Masks*:

Any ontology is made impossible in a colonized and acculturated society. Apparently, those who have written on the subject have not taken this sufficiently into consideration. In the *Weltanschauung* of a colonized people, there is an impunity or a flaw that prohibits any ontological explanation. Ontology does not allow us to understand the being of the black man, since it ignores the lived experience. For not only must the black man be black; he must be black in relation to the white man... The black man has no ontological resistance in the eye of the white man. From one day to the next, the Blacks have had to deal with two systems of reference. Their metaphysics, or less pretentiously their customs and the agencies to which they refer, were abolished because they were in contradiction with a new civilization that imposed its own.

Here, Fanon draws our attention to the impossibility of theorizing ontology without understanding the epistemic inequalities that shape social life. In conditions of extreme inequality, Fanon argues, “being” for oneself is not actually possible. One is always Other, lacking authority and voice, and those epistemic deprivations make an ontology—at least as Western philosophers had conceived it—utterly impossible.

Fanon's understanding of the term ontology is not identical to Bhaskar's. For Bhaskar (1975), the real refers to the domain of causal mechanisms in nature or society that are real (that have causal powers by virtue of what they are and exist independently of our knowledge of them), that may be actual or not (whose causal powers may be exercised or not), and that may be observable or not (the causal powers may be active without anyone observing them). Bhaskar developed his philosophy of science by thinking through the ontological conditions of possibility of scientific experiments. Fanon was a medical doctor, but influenced as he was by Sartre's phenomenology—and his own experience as a French colonial subject—he was obviously much more interested in the structures of oppression that colonial subjects feel in the flesh. What interests him is not experiments that uncover causal mechanisms, but the *experience* of domination in oppressive social structures.

This domain of experience that is formed when real causal structures are actually experienced by living subjects is not well captured by critical realism. In the same way that critical realism reacts to epistemology with the critique of the epistemic fallacy, it reacts to more phenomenological conceptions of the real with an accusation of “actualism” (Bhaskar, 1975, pp. 92–97). We think critical realists, and many sociologists in general, need to overcome these reflexes and reintroduce the experiences of oppression, exclusion, and invisibility that vitiate the objectivity of scientific research. Indeed, we need to do this precisely in order to make science more objective, plural, and engaged. Critical realism's critique of a narrow-minded empiricist conception of sense data is well taken, but we propose that in order to create a fuller epistemological account, it is necessary to redefine the domain of the actual as the locus where

real causal powers intersect with the actual experience of subjects (Vandenberghe, 2020). We think that this reevaluation of the actual experience of “generalized master-slave relations” (Bhaskar, 1993, pp. 330–335) within the philosophy of science is not only compatible with critical realism (e.g., D’Souza, 2010; Hockey, 2010) but is demanded by its social ontology and its social critique.

Just as postcolonial theory offers a necessary complement to critical realism, we believe that critical realism can assist postcolonial theory by rethinking the asymmetric relation between the center and periphery—or between colonizer and colonized—as a social structure with “degenerative mechanisms.” But to get to those mechanisms, one has to start somewhere, and the proposition of postcolonial theory, like standpoint theory, is that one has to start with the experience and knowledges of the subaltern, those who experience and know the effects of exclusion and oppression. Feminist and postcolonial epistemologies that center silenced voices thus help us overcome the biases of mainstream science and the systemic occlusions to which they give rise. The conjoined analysis of real social structures, a social conception of epistemology, and a genuine commitment to judgment and critique can lead to the truth—for the time being (*pro tem*), because there are always others who have not spoken yet.

In summary, a basic contribution of postcolonial theory, like feminist standpoint theory, is that social actors’ situatedness in both social structures and histories generates divergent epistemic conditions. In critical realism, such multiplicity is often considered an obstacle for generating knowledge at the level of the ontological. But feminist standpoint and postcolonial theory insist that difference, reflexivity, and power must be grounding points for knowledge, since we cannot avoid them in our actually existing social world. Indeed, good knowledge cannot be produced or *assessed* without considering the hierarchical context for knowledge production. Drawing on these perspectives, then, critical realism’s goal of explaining deep causal mechanisms and hidden structural powers requires that we take up this critical perspective on the power dynamics of knowledge production processes, as well as the refusal to separate ontology from epistemology.

4.1 | Case study: Indigenous knowledge, the DFO, and clams—Chantelle Marlor (2010)

Hasson’s (2012) research revealed the systematic biases that are introduced into science when it excludes the lived experience of marginalized subject positions. Our second example shows more fully how—under certain conditions—knowledge produced from subaltern standpoints is *better* than the normalized scientific account, precisely in the sense that it comes closer to accessing reality. Here we turn to Marlor (2010), whose ethnographic research looks at two groups of knowledge practitioners who differently approach clam surveying and harvesting. Her work investigates power, bureaucracy, and legitimate and alternate knowledge. The two groups are the Kwakwaka’wakw First Nations (Native American) traditional marine harvesters, and the Department of Fisheries and Operations (DFO) government biologists in Canada. Marlor’s (2010) work builds off Collins and Evans (2002) who argue that “not all voices are equally informed about all topics—a gardener or physicist cannot contribute equally to a discussion about nuclear generators or the best time to plant crops” (in Marlor, 2010, p. 515).

Marlor (2010) emphasizes how alternate and non-scientific ways of knowing are excluded because they do not employ standard methods *in the same way* as traditional science.⁵ Her

research is relevant for thinking about the intransitive realm as well as judgemental rationality, for it provides a postcolonial context for rethinking knowledge. Let us sketch two pictures that can swiftly capture some of Marlor's (2010) analysis.

In the first picture, think of the beach at low tide. If the DFO were to conduct a clam survey of this beach to learn how many clams were on it in order to write policies about environmental and ocean management, they would plot the beach into squares, randomly choose squares, dig up those squares to see how many clams are in each spot, and then extrapolate from there to estimate how many clams were on the beach. Their methods are elaborated in full detail by Marlor (2010). It is important to note that the DFO's surveying occurred during a time of government and funding cutbacks. The First Nations in Marlor's (2010) research find this method for environmental conservation inappropriate, inefficient, and wrong.

Now let us sketch a second picture, one where digging clams is a way of life, where assessing clams and the beaches is central to one's life now and in the future—how much harvesting to do now, in the future, and where and when to return to the beach. Unlike the DFO who dig for clams based on a random sample, the First Nations' selection of where to dig was based on personal and historical experience. For example, the First Nations people whom Marlor spoke with thought the DFO methods were foolish, saying, “why dig for clams where there are not clams?” In fact, surveying a whole beach to count for butter clams makes no sense since, as the First Nations point out from experience, this species of clams prefers “to live in sediment adjacent to boulders and rock walls.” Yet significantly, the DFO excluded these locations from their surveys.

Notably, the DFO's methods of beach and clam surveying are considered legitimate and credible, while the First Nations' methods are not “replicable” by scientific standards and therefore, not valid in the eyes of the DFO. Yet, this replicability and standardization was not a concern for these First Nations people. As Marlor (2010, p. 522) writes:

The First Nations' diggers' argued that the best knowledge is embodied knowledge. As several of the older, most experienced diggers told me ‘experience is the best teacher’—to learn something well meant being able to know it in your body, not just on a piece of paper.

Marlor's research makes clear an issue central to our proposition in this paper: the power dynamics between knowledge producers exposes the epistemological differences between knowledge holders, in this case between scientists and “alternate knowledge practitioners” who may hold incompatible *systems of knowledge*. Marlor (2010, p. 529) sums up the implications of this well:

... at present we are left with scientific ways of knowing being privileged over other ways of knowing due, at least in part, to citizens' demand for accountability and a tension between this democratic ideal, that state officials are accountable to citizens for their actions, and the ideal that the state represents the needs and interests of its citizenry.

There are multiple ways of knowing, each of which think they have the superior knowledge for properly managing beaches and clam conservation. Historically situated and embodied knowledge is arguably more appropriate in the context of clam conservation because it is better

grounded in the actual experience of that practice. However, it has been subjugated in favor of standardized scientific methods.

5 | DISCUSSION: CRITICAL REALIST EPISTEMOLOGY

Opening up a third way between the empiricism of the positivists and the conventionalism of the postmodernists, critical realism has been able to explicate the working philosophy of actual scientists. Together, its triad of ontological realism, epistemic relativism, and judgmental rationalism offers solid guidelines for the progress of science: science uncovers real mechanisms, proposes various theories to account for those mechanisms, as well as a procedure to adjudicate between their veracity. The problem with critical realism, however, is that it does not really question science as such. It assumes that science is the royal way to the truth and the real. With its focus on experiments, it does not leave much space for alternate, embodied, historical, and situated knowledges. Indeed, the problem is actually not so much that critical realism fails to consider the social location of the knower and her situated experience, but rather, we would suggest, it is that critical realism implicitly *generalizes* the specific experience of one *particular* social location—that of the scientific observer, especially the experimenter (even as it recognizes that experiments themselves are mostly inapplicable to the social world). Taking that experience as a starting point is adequate—indeed, it is most appropriate—to the closed system of the laboratory. But it is deeply insufficient to account for the conditions of knowledge production in, and about, the open system of the social.

In short, epistemology remains undertheorized in critical realism. It is seen as something to be overcome *by* realism. Critical realism has a tendency to overemphasize ontological questions to the detriment of epistemological ones. The critique of the epistemic fallacy is never far away. The accusation of epistemic fallacy, rather than encouraging strong ontological accounts, silences discussion of the real power inequalities that shape knowledge production. Drawing on feminist standpoint theory and postcolonial theory, we have brought the epistemological question back to the fore. Knowledge *of* the real, we argue, can be obscured for a variety of reasons that are embedded *in* the real, such as inequality, privilege, politics, even bureaucracy.

In this article, then, we have tried to turn the tables on critical realism by centering epistemic inequalities. As illustrated by the diverse cases presented in this paper, the scientific representation of reality is never neutral—it is shot through with power. Our cases reveal examples of what is at stake when knowledge is distorted by power, revealing epistemic contestations “on the ground.” The brief case studies presented – of menstruation and Indigenous knowledge – allow us to move from simply *theorizing* these ontological-epistemological debates toward a grounded vision of the lives and worlds that are damaged, misrepresented, and mismanaged if epistemic inequalities are not acknowledged. In fact, our cases illustrate how the knowledge generated from joining epistemology and ontology is stronger and more accurate. By bringing power back into the philosophy of science, we have used the conceptual apparatus of critical realism to theorize patriarchy and colonialism as structures of domination that affect science and knowledge from within. We have relied on critical realism to thematize the causal mechanisms that affect the workings of science and uncover the ideologies that make them ‘misrepresent’ reality. By doing so, we have proposed a social epistemology that is on a par with critical realism’s social ontology. The result of this articulation between critical realism, standpoint theory and postcolonialism is a critical theory of science that aims to uncover the

causal powers of social structures on science, make visible its silences and bring back excluded voices into the scientific discussion to open the sciences to alternate experiences of reality. We still believe that ontological realism, epistemic relativism, and judgmental rationalism point in the right direction. But to properly conceptualize the philosophy of the social sciences, we need to introduce critical social epistemologies into critical realism. Precisely because, as critical realists maintain, there are always more events that actually occur than events that are empirically observed, we must acknowledge the observer as a situated *knowledge producer*, questioning who and what determines that which can be known, and from what standpoint and what history. This requires considering histories and relations of power among knowers.

Critical realism is not the “other” of feminism and postcolonialism. It is its brother. They should belong to a family of approaches that demand strong ontological claims alongside bold, critical accounts of epistemological conditions. Notably, we are not the first to propose a joining of epistemology and ontology. For example, looking at Indigenous knowledge, Watts (2013) emphasizes that the very bases of Haudenosaunee or Anishnaabe cosmological frameworks (which link praxis, place, and thought) have been translated into abstract framings of an epistemological-ontological divide (p. 22). She argues that Indigenous cosmologies engage an entirely different focus on what is “society” – one which is an “extension of Sky Woman’s original circumstance” (Watts, 2013, p. 23).⁶ Joining a discussion on the importance of this unity, it is our belief that by introducing feminist and postcolonial epistemologies into critical realism, we are actually able to explain—and thereby also potentially overcome—the disparities and asymmetries that impede realist social inquiry.

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CONFLICT OF INTEREST

There are no conflict of interests in the development of this paper.

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ENDNOTES

¹ The problems with critical realism start when we transpose the transcendental realist argument from the natural to the social sciences. While transcendental realism fully acknowledges that our knowledge of the natural world is socially, culturally, and historically variable, it still assumes that the natural world is simply out there and that it exists independently of our (scholarly) knowledge of it. There remains a “bar” between the transitive and the intransitive, the epistemic and the ontic, the natural and the social. What is strange, when it comes to social science, is that this relegation of knowledge and being to separate “dimensions” flies in the face of critical realism’s understanding of *social reality itself*. For in *The Possibility of Naturalism*, Bhaskar (1979) had argued that social reality is distinguished precisely by its “concept and activity dependence,” by which he meant that social structures are partially constituted by (though irreducible to) *agents’ very knowledge of them*. It would seem, then, that critical realists have a theory of social knowledge (which stresses its separation from its object) that is inconsistent with their theory of social reality (which stresses its concept

- dependence). Put differently, it would seem that critical realists are insufficiently realist about epistemology. In any case, they have difficulty accepting the idea that the transitive dimension may actually contribute to the constitution of the intransitive dimension.
- ² Critical realist-inspired researchers have also elaborated methodological prescriptions for theory development, testing, and adjudication: here we find discussions of “abduction,” “retroduction,” and “retrodition” (Danermark, Ekstrom, & Jakobsen, 2002), and the uses of case studies and comparisons (Steinmetz, 2004).
 - ³ Postcolonial theory and postcolonial Indigenous knowledge are related, but separate endeavours with different epistemological goals and should not be collapsed (see Browne, Smye, and Varcoe (2005) for a discussion of similarities and differences).
 - ⁴ In her work on Indigenous knowledge, Watts (2013, pp. 22–23) argues that the “Euro-Western meta-understanding” of the epistemological-ontological divide is a colonized understanding of Indigenous cosmologies.
 - ⁵ There is a broad body of research that is done in opposition, or in response to the colonizing practices of Western research programs. In the realm of postcolonial Indigenous knowledge, this research is commonly produced by Indigenous scholars and theorists who develop and use their own research paradigms and programs (Martin & Mirraoopa, 2003; Smith, 1999). Martin and Mirraoopa (2003, p. 216) argue, “Indigenist research must centralise the core structures of Aboriginal ontology as a framework for research if it is to serve us well. Otherwise, it is western research done by Indigenous people”. Indigenous methods and research aim to work outside and look beyond “fact-based” information. Instead, they emphasize Indigenous ways of knowing specific to Indigenous ontology that emphasizes “Entities of Land, Animals, Plants, Waterways, Skies, Climate and the Spiritual systems of Aboriginal groups” (Martin & Mirraoopa, 2003, p. 209).
 - ⁶ Many Indigenous scholars and thinkers emphasize the importance of reclaiming the precolonial mind and focusing on *Place-Thought* (See Hill, 2012; Watts, 2013) – which is not a universal model of Indigenous thought, but which focuses on the “embodiment of the feminine, of First Woman, by which many Indigenous origin stories find their inception” (p. 23).

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