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ORIGINAL ARTICLE

The humanities as conceptual practices: The formation and development of high-impact concepts in philosophy and beyond

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This paper proposes an analysis of the discursive dynamics of *high-impact concepts* in the humanities. These are concepts whose formation and development have a lasting and wide-ranging effect on research and our understanding of discursive reality in general. The notion of a *conceptual practice*, based on a normative conception of practice, is introduced, and practices are identified, on this perspective, according to the way their respective performances are held mutually accountable. This normative conception of practices is then combined with recent work from philosophy of science that characterizes concepts in terms of conceptual capacities that are productive, open-ended, and applicable beyond the original context they were developed in. It is shown that the formation of concepts can be identified by changes in how practitioners hold exercise of their conceptual capacities accountable when producing knowledge about a phenomenon. In a manner similar to the use of operational definitions in scientific practices, such concepts can also be used to intervene in various discourses within or outside the conceptual practice. Using the formation of the concepts "mechanism" and "performative" as examples, the paper shows how high-impact concepts

reconfigure what is at issue and at stake in conceptual practices. As philosophy and other humanities disciplines are its domain of interest, it is a contribution to the methodology of the humanities.

KEYWORDS
concepts, humanities, mechanism, performative utterances, philosophy of science, practice

1 | INTRODUCTION

The practice of creating novel concepts and refining existing concepts is a central feature of academic work in the humanities. Whereas scholars normally introduce such concepts to resolve a specific issue in their discipline, sometimes their concepts can make an impact that reaches far beyond this issue. Consider the concept of "paradigm," which Kuhn (1962/1970) introduced to respond to the issue of how scientists successfully solve a previously intractable problem. A paradigm provides an exemplary solution to a problem by introducing novel concepts and methods that subsequently become accepted as standards of a scientific practice. The concept "paradigm," and the corresponding historiographic practice of identifying shifts between paradigms, provided historians with a new understanding of the development of scientific knowledge. But it also impacted philosophical debates about scientific realism, rationality, and meaning (Hacking 1983) and fuelled the development of such disciplines as history and philosophy of science or the sociology of scientific knowledge (Blum et al. 2016). More controversially, "paradigm" was also used to characterize scholarly practices of the social and human sciences themselves (Percival 1976; Eckberg and Hill 1979). Through Kuhn's work, "paradigm" even became part of broader public discourse.

Let us call concepts like "paradigm" *high-impact concepts*. Such concepts decisively transform how a practice understands and investigates phenomena in its domain of inquiry and influence a wide range of issues outside that practice. Because standard accounts of concepts (Margolis and Laurence 1999, chap. 1) separate such discursive influences from what they take to be the intrinsic features of the concepts (for example, their semantic value), a systematic philosophical analysis of the formation and development of high-impact concepts in the humanities is still missing so far. We attempt to close this gap by proposing an analysis of the discursive dynamics by which high-impact concepts in the humanities are formed and developed. According to this analysis, discursive impact is not an extrinsic feature of concepts. This is because concepts are inextricably bound up with the research practices in the course of which they have been developed. Thus, the following is an essay in the methodology of the humanities, offering a case-based exposition of what we think is a central element in the humanities' methodological toolbox.

We conceive of humanities research by way of the technical notion of a *conceptual practice*. This notion is based on two theoretical elements. The first element is a normative conception of practice, which identifies a practice based on how performances are *accountable* to one another and based on what is at issue and at stake in continuing that practice (Rouse 2007a). Because holding one another accountable is an ongoing process, the norms of a practice are never fully determinate. The second theoretical element comes from practice-oriented philosophy of science, which emphasizes that scientific concepts, especially those with high impact, typically are epistemically *productive* (they provide tools to generate knowledge about a phenomenon), *open-ended* (their significance evolves with its uses in different empirical and theoretical circumstances), and are *widely applicable* (they can traverse

contexts and disciplines and may eventually affect the conceptual self-understanding of a society as a whole). We claim that practice-oriented philosophers of science account for these features by privileging *conceptual capacities* of scientists over the properties that concepts possess independently of the exercise of these capacities. We illustrate the resulting conception of scientific concepts by focusing on operational definitions. Such definitions can be used to produce empirical knowledge by providing revisable instructions on how to intervene in a phenomenon (Feest 2010).

Combining the two theoretical elements, we claim that the formation and development of high-impact concepts in the humanities *changes* how practitioners hold activities like conceptual, legal, or historiographic analyses *accountable* to one another. Introducing a high-impact concept reconfigures what is at issue and at stake in a practice. It does so by providing practitioners with new candidate formulations of what that practice is *about*. High-impact concepts in the humanities render a previously unknown part or phenomenon of discursive reality salient to scholars and provide them with a spectrum of new options for articulating—that is, understanding—the phenomenon. Using the productive and open-ended character of operational definitions as a model, we claim that high-impact concepts in the humanities can be used to intervene in various discourses. One way in which such concepts in the humanities can be productive is that they allow practitioners to perform a number of different *discursive interventions*. The wider applicability of a concept will then depend on how many different domains these interventions target.

By including the rearrangement of existing concepts in our definition of the formation of novel concepts, our project is congenial to recent discussions of *conceptual engineering* in philosophy of language. While proponents of conceptual engineering also emphasize that humanities scholars should try to improve existing concepts if they are deficient in order to resolve a certain issue, they usually remain silent on how these concepts are formed in the first place (see Cappelen 2018, 37). Besides aligning with the aims of conceptual engineering, our account has an additional benefit. It describes how novel concepts are formed such that it becomes possible to both evaluate and improve them in ongoing conceptual practice.

The formation of concepts as we understand it does not happen relative to a discipline but relative to a domain of inquiry. While disciplines are characterized by institutionalized interests of part of a community of researchers, domains are the segments of material-discursive reality with which disciplinary interests may or may not align (see Rouse 2015, chap. 10).[1] Members of different disciplines can share a domain: for example, a legal scholar and a historian may both work on the domain of *labor*. If these scholars form new legal or historical concepts to understand what labor is, they change the conceptual understanding of that domain of inquiry beyond their own disciplinary boundaries. When we discuss examples from philosophy below, we always aim to explicate this transdisciplinary sense of forming new concepts responsive to and embedded in a concrete domain of phenomena.

We proceed as follows. In section 2, we introduce the normative conception of practice and the practice-based understanding of concepts that together constitute our notion of a conceptual practice. Subsequently, we analyze the formation of concepts in a conceptual practice as a process that involves committed practitioners who exercise their conceptual capacities to respond to a novel problem by (re-)arranging existing concepts as constitutive elements of a novel concept. In section 3, we use the examples of *mechanism* and *performative* to show how the formation of high-impact concepts has affected conceptual practices, such as philosophy

[1]We use the non-dualistic expression "material-discursive" to highlight that actions and interests of humans are *components* of physical systems via their performances. Yet it is precisely those physical performances and their mutual accountability that constitute the open-ended normativity of segments of material-discursive reality. See Rouse 2002, 283 and passim, and our sections 2.1 and 2.3 below.

and other academic disciplines, in which these concepts are applied. Section 4 offers a brief conclusion.

2 | CONCEPTUAL PRACTICES AND THE FORMATION OF CONCEPTS

2.1 | The normative conception of practices

To construe humanities as conceptual practices, we adopt Joseph Rouse's normative conception of practices. In social theory and elsewhere, practices are frequently understood in either a *regularist* or a *regulist* fashion (Rouse 2007a, 2). Regularists claim that one practice is distinguished from another by different kinds of behavioral *regularity*, that is, by what its members generally or frequently do. In contrast, *regulists* hold that one practice is distinguished from another by different kinds of *rules* that its members presuppose.

To illustrate the differences between these two conceptions, consider how they would distinguish the practices of dancing salsa versus dancing a waltz. According to regularists, salsa practitioners generally or frequently perform the "Guapea step," whereas waltz practitioners generally or frequently perform the "box step." Regularities individuate and organize the practice because a performance counts as correct or incorrect depending on whether it is or is not sufficiently similar to former token performances in the behavioral pattern. According to regulists, in contrast, executing the Guapea step presupposes rules like "as a leading partner, begin by putting your left foot backwards," whereas the box step presupposes rules like "as a leading partner, begin by putting your left foot forwards." The sum of all presupposed rules individuates and organizes practices because a performance counts as correct or incorrect depending on whether it can be interpreted as following those rules or not.

In contrast to regularist and regulist conceptions, the normative conception holds that "a performance belongs to a practice if it is appropriate to hold it accountable as a correct or incorrect performance of that practice" (Rouse 2007a, 3). Suppose I stand with my partner in a salsa dancing class and I put my left foot backwards. This performance belongs to the practice of salsa dancing because it is appropriate to hold it accountable as a correct opening of the Guapea step. Now suppose that after leaving the salsa lesson, I bump into a person on the street, and out of reflex we each grab the hands of the other so as to not lose our balance. If I now move my left foot backwards (for example, to provide space to the person I bumped into), my performance arguably does not belong to the practice of salsa dancing. It would be inappropriate to hold it accountable as a correct opening of the Guapea step (supposing that unintentionally moving in that way does not count as a Guapea step; see below).

In both the salsa lesson and the street case, holding the performance accountable can itself be done correctly or incorrectly. Therefore, holding a performance of the putative practice accountable is itself a performance of the practice in question. Performances of a practice are always *mutually* accountable. According to the normative conception, mutual accountability individuates and organizes a practice: it distinguishes practices based on how their constitutive performances bear on one another and it specifies how members evaluate a performance within a practice as correct or incorrect.

The normative conception provides an alternative to regularist conceptions because the process of mutual accountability excludes some performances from a practice even though they appear to be instances of the same behavioral regularity. Consider the street case again: the process of mutual accountability excludes moving my left food backwards from the salsa practice, even though this performance is similar to what salsa practitioners generally or frequently do when executing the Guapea step.

The normative conception also provides an alternative to regulist conceptions because it requires no presupposed rules that members of a practice share to hold one another accountable. Salsa practitioners can disagree over when it is inappropriate to hold accountable moving my left foot in the street. Suppose that in the street case salsa music plays in a nearby shop. Some may find it appropriate to count my move as the correct opening of the Guapea step, while others may find it inappropriate because I had no intention to dance. According to the normative conception, this debate over what it means to be a salsa dancer is part of the practice of salsa dancing, even though the members of this dispute share no rule that could settle it definitely one way or the other. The normative conception can thus uphold the normative character of practices without running into Wittgenstein's regress problem of following a rule (see Rouse 2007a, 4, and 2007b, 502–3).

The normative conception explains the normativity of practices differently from the other two conceptions. Both regularist and regulist conceptions imply that the norms of a practice have a determinate form. At any given point in time, a performance counts as correct or incorrect on these accounts—either because it falls or does not fall under the behavioral regularity that members of a practice exhibit (regularism) or because it follows or violates a rule that all members of the practice explicitly or implicitly presuppose (regulism).[2] The normative conception eschews this assumption of determinate regularities or rules. It instead claims that the normativity of a practice is partially indeterminate at any given point in time.

The street case illustrates this partial openness: whether it is appropriate or inappropriate to count my present move as a salsa performance depends in part on how salsa practitioners will settle the dispute over unintentional dance moves. If they begin to hold such moves mutually accountable, then my move will (retrospectively) count as the correct opening of the Guapa step. The normative status of present performances is partially indeterminate because it depends in part on facts that are not settled by these performances.

To characterize this openness of norms more precisely, the normative conception introduces the meta-conceptual devices of "issues" and "stakes" (see Rouse 2007a, 6). "Issues" refer to the problems that practitioners attempt to resolve when participating in a practice. Issues are partially indeterminate because present practitioners can disagree on how to resolve them, and because their normative status depends on future performances. For example: an issue in chemical practice may be how to determine the structure of a certain metal. Different chemists may disagree over what counts as a successful solution of the issue. But even if they come to agree how to resolve the issue, future performances may change what counts as a correct or incorrect performance. Using a novel method for structure detection, for instance, may change what counts a correct or incorrect determination of chemical structure.

"Stakes" denote the wider significance of resolving an issue in one way or another. Figuring out the structure of a metal, for instance, matters to a range of other practices dealing with that metal, for instance engineering or materials science. Like issues, stakes are partially indeterminate. Practitioners may at present disagree on the wider significance of their performances, and future performances can reconfigure the significance of responding to an issue in one way rather than another. For example, a novel engineering project requiring differently structured metals can reconfigure the significance of a chemical method for structure determination. Practitioners may disagree on whether or how its significance is altered.

Of course, practitioners can and do attempt to determine the norms of their practice by explicitly formulating what is at issue and at stake. But such explicit formulations are necessarily

[2]This formulation allows that regularities or rules change over time. Nonetheless, if they are not determinate at any given point in time, they cannot be used to sort correct from incorrect performances (see Rouse 2007b, 519–20, 529, for discussion).

provisional, because their normative force depends on whether future practitioners will hold one another mutually accountable to that formulation. What is currently at issue and at stake in a practice cannot be exhaustively expressed, because it depends to some extent on facts that are not settled by present performances.

2.2 | The open-ended and productive nature of concepts in scientific practice

The partial openness of normative practices is congenial to four interlocking features of concepts as they are understood in recent practice-based philosophy of science.[3] We highlight these features not because we think that all scientific concepts necessarily possess them but because we claim that scientific concepts that *do* possess them are typically high-impact. Understanding the features of high-impact concepts in the sciences is a good starting point for figuring out how concepts in the humanities are formed, and also for understanding how they achieve discursive impact.

The first feature that practice-oriented approaches to scientific concepts highlight is a focus on the practical roles of concepts (instead of exclusive engagement with metaphysical or semantic debates about what concepts are). When asking how concepts aid scientists in describing, classifying, explaining, predicting, and controlling the behavior of natural phenomena, philosophers of science ask methodological questions rather than semantic or metaphysical questions about concepts (Bursten 2016).[4]

This position shifts the focus from concepts as discrete entities to the *conceptual capacities* of intellectually competent agents. A capacity is conceptual (a) if it is appropriate to hold performances of it accountable to the norms of a practice and (b) if that normative accountability extends beyond the immediate perceptual and practical circumstances the performance responds to (see Rouse 2015, 45, 159–60). Consider, for instance, the capacity of a psychologist to describe a data pattern with the term "implicit memory" (Feest 2010). It is (a) appropriate to hold performances of this capacity accountable to the norms of scientific practice. The description should be, for instance, empirically adequate. Performances of psychologists are also (b) accountable beyond the immediate circumstances of the particular experiment they respond to. Descriptions of "implicit memory," for instance, should be projectable onto other experimental or worldly circumstances.

We do not claim that (a) and (b) provide criteria to distinguish all capacities as conceptual or nonconceptual in character.[5] We merely hold that scientists' capacities to describe, predict, or explain phenomena (amongst others) are clear cases of conceptual capacities because they fulfil (a) and (b). When they analyse the roles that concepts play in scientific practice, philosophers of science give methodological primacy to conceptual capacities over the status of concepts as abstract entities or discrete mental representations (see Margolis and Laurence 1999, 5ff.).

This methodological primacy of conceptual capacities directly supports the second feature of concepts stressed by practice-oriented philosophers of science: their *productivity*. In

[3]Wilson 2006; Feest 2010; Feest and Steinle 2012; Rouse 2015; Bursten 2016; Haueis 2021.

[4]As Bursten notes, one's take on metaphysical and semantic questions will influence one's answers to methodological questions about concepts, and vice versa. We therefore do not deny that our emphasis on conceptual capacities, productivity, open-endedness, and applicability has metaphysical and semantic implications. But since these implications are secondary for the purposes of this paper, we will not discuss them further here.

[5]At least in the salsa example above, (a) and (b) do seem to produce the right results: moving my left foot backwards is not conceptual. Although that performance is accountable to the norms of salsa practice, its accountability does *not* extend beyond the immediate circumstances to which it responds. By contrast, the debate over unintentional dance moves is conceptual because it is accountable beyond those circumstances.

general, a scientific concept is productive if it contributes to the generation of knowledge about a phenomenon. In what follows, we focus on how concepts are productive by providing scientists with *operational definitions* that function as tools to generate empirical knowledge (Feest 2010). We do not claim that all scientific concepts are productive in this way, or that this is the only way in which a scientific concept can be productive. Operational definitions are productive because they provide practitioners with revisable instructions for how to perform an experimental intervention. Applying the operational definition—that is, performing the instructed intervention—produces data that are indicative of phenomena to be investigated.

For example: in cognitive psychology, the phenomenon of implicit memory is indicated by the data pattern of subjects getting better at recognizing an item after being previously exposed to it, even though they have no conscious recollection of having been exposed to that item before (see Feest 2010, 185). The experimental conditions that produce this dissociation between implicit and explicit memory tests provide the paradigmatic application conditions of the concept "implicit memory." Operational definitions of a concept can be used to produce empirical knowledge because they enable researchers to empirically individuate instances of a phenomenon that their concept is supposed to refer to.

We construe the use of such operational definitions normatively to account for the *flexible* use of operational definitions and the existence of *competing* commitments about the phenomenon (see Feest 2010, 182). Practitioners need to use operational definitions flexibly to respond to various issues in experimental practice. What is at stake in resolving an issue one way or another is, amongst other things, which understanding of the phenomenon researchers should favor. For example, an issue in implicit memory research is whether the results of implicit tests vary with sensory modality (Feest 2010, 187). To resolve the issue, researchers must apply implicit memory tests flexibly by presenting stimuli in different sensory modalities. What is at stake in resolving this issue is whether "implicit memory" refers to a semantic system or a perceptual representation system in the cognitive architecture of humans.

This normative construal of operational definitions emphasizes the exercise of conceptual capacities for holding performances accountable. Let's say I want to determine whether an experiment used the operational definition of "working memory" correctly. To do so I must be able to tell whether it is appropriate to hold the experimental results accountable to the presence or absence of a functional dissociation between explicit and implicit tests. But I must also be able to say how this presence or absence is accountable beyond the experimental circumstances. Does an absence indicate a methodological error? Or that working memory varies with sensory modality (that is, because "working memory" refers to a perceptual representation system)? In other words, being able to perform operations *appropriately* and being able to hold such performances *accountable* beyond the immediate circumstances of application is a conceptual capacity of an experimental practitioner. The productive character of operational definitions primarily lies in the exercise of that conceptual capacity, not in how a concept as a distinct entity (a mental representation or abstract object) is "applied" to another entity (a data set or a phenomenon).

The primacy of conceptual capacities also links this productive character to the third feature: the *open-endedness* of conceptual activity. A capable scientist must be able to appropriately perform an intervention in many different experimental situations. When using an operational definition flexibly, her conceptual capacities will evolve alongside the changes she makes in her experimental design to produce novel data. If everything goes right, the novel data will indicate something about the phenomenon that researchers did not know before. But what that "something" exactly is will be open to ongoing interpretation. Researchers with different conceptual capacities will hold competing commitments about the phenomenon they

are investigating. Resolving such interpretative disputes one way or another leads to the formation of new concepts and/or the transformation of existing concepts.

The open-endedness of conceptual activity is not restricted to newly introduced terms but often extends throughout the entire process of inquiry. Well-entrenched concepts like "hardness" or "force" in physics (Wilson 2006), "homology" in biology (Novick 2018), and kind terms in chemistry (Bursten 2016) do not possess one principled definition, nor are they part of a unified theory about their application domain. Instead, scientists frequently choose from a loosely connected patchwork of operational definitions or scale-dependent models to manipulate and refer to different kinds of properties, entities, or processes in the domain (Haueis 2021). Such definitions and models often form a conceptual patchwork that includes intervention-relative shifts in reference and contradictory commitments about phenomena in the domain (see Wilson 2006, 180–81, 335ff.).

Subtle shifts of reference or contradictory commitments often remain opaque to practitioners pursuing local descriptive or explanatory goals (Love 2013). When a practitioner does make them transparent, he articulates a *semantic picture* of the concept, that is, a story about how a representational device (linguistic term, diagram, equation) correlates with certain worldly properties (see Wilson 2006, 516–17). Unlike using operational definitions, articulating a semantic picture is not a first-order but a *second-order* conceptual capacity. For example: when practitioners use an operational definition, they work *with* a concept to produce data and generate knowledge. When they articulate a semantic picture, they work "on" the concept itself. They attempt to express how other conceptual capacities are—and should be—exercised. The normative status of both first-order and second-order conceptual capacities depends in part on future performances of an experimental practice. Therefore, both working with and working on a concept is partially indeterminate. Any explicitly formulated picture of what a concept means is contestable because the total pattern of current use is not transparent to the practitioner articulating it. Semantic pictures are always provisional because their ability to capture future uses is not completely settled by the facts about current use.

Semantic pictures provide the basis for the fourth and final feature of scientific concepts: their applicability beyond contexts in which they were originally developed. For example, the concept of gene was originally formed in experiments that correlated the number of mutant traits in cross-bred fruit flies with chromosome differences (see Rouse 2015, 233). These and other experiments were the basis of a semantic picture according to which "gene" refers to intergenerational patterns of inheritance (see Brigandt 2010, 26). Based on that picture, molecular biologists started to extend the concept of gene to experiments with microorganisms in which mutations led to missing enzymes. But that case is not covered by the original semantic picture. "Gene" here refers not to inheritance patterns between organisms but to mechanisms producing molecules such as enzymes within an organism (cf. Brigandt 2010, 27). The concept of gene acquired this novel meaning because scientists exercised their conceptual capacities to respond to novel issues (Arabatzis and Nersessian 2015).

Scientific concepts not only traverse scientific contexts and disciplines, they also affect the conceptual self-understanding of a society as a whole. The concept of gene, for instance, has important inferential relations to concepts in information and computing technology (for example, "genetic code"). It has also shaped other discourses, for example on kinship or reproduction. The meaning of a scientific concept in these broader segments of material-discursive reality depends on how performances in scientific, medical, legal, or political practices are held mutually accountable. For example, the discursive entanglement of genetics shaped intradisciplinary conceptual developments such as the notion of the genetic code. But this entanglement also affects the broader significance of such conceptualizations, like the idea of unlocking the "code" to understand the "secrets of life" (see Rouse 2015, 339). The formation of new scientific concepts thus both reconfigures and is reconfigured by the larger patterns of practical engagement with the world that constitutes our material-discursive reality.

Let us reiterate that we do not propose that a scientific concept must possess these four features to be useful in scientific practice. Rather we think that concepts which do possess these features, such as the concept of gene, will be more likely to have a wide-reaching impact on how we understand a phenomenon or group of related phenomena. In their attempt to understand the dynamics of such high-impact concepts, philosophers of science focus on the dynamic and ongoing exercise of conceptual capacities that underlie knowledge-generating performances and the articulation of partial and contestable semantic pictures. We now argue that these features are also useful to understand the discursive dynamics of forming and using high-impact concepts in the humanities.

2.3 | The formation of concepts in conceptual practices

According to our account, the ability to form novel concepts is a conceptual capacity whose exercise can be held accountable as correct or incorrect performance of a practice. Correct performances of this capacity enable practitioners to act in and understand their domain in novel ways. Novel linguistic terms, equations, or diagrams allow practitioners to express these novel possibilities. In the empirical sciences, the formation of concepts typically starts when a novel data pattern attracts the curiosity of researchers. For instance: cognitive psychologists introduced the term "implicit memory" to characterize a data pattern produced by using explicit and implicit memory tests (see Feest 2010, 184). Scientists only retrospectively reflect upon such patterns of use when they employ their second-order conceptual capacities to articulate partial and contestable semantic pictures.

The formation of new concepts in conceptual practices proceeds differently. It does not begin with a pattern in empirical data but begins directly with a pattern of concept use or, more precisely, a pattern in the exercises of conceptual capacities. For example, Feest (2010) takes patterns of using operational definitions of "implicit memory" as the starting point for her philosophical work on the concept "operational definition." Recognizing and articulating patterns of use and semantic pictures is therefore a first-order and not a second-order conceptual capacity in conceptual practices. Second-order capacities are those discipline-specific methods that humanities scholars use to facilitate the recognition and articulation of conceptual patterns. Examples of such methods are conceptual analysis, explication, discourse analysis, actor-network theory, close reading, deconstruction, and the like. The formation of concepts takes a central position in philosophy and other humanities disciplines because it is a first-order conceptual capacity in these practices.

The central position of the formation of concepts also reconfigures the productive character of concepts in conceptual practices. We model this form of productivity on operational definitions, which are tools to produce knowledge about phenomena because they enable novel experimental interventions. On this model, one way in which concepts in the humanities can be productive is that they enable what we call *discursive interventions*. Experimental interventions can produce knowledge about a narrowly understood domain in nature. In contrast, discursive interventions can produce knowledge about a broadly construed segment of material-discursive reality. These segments are domains of another practice plus the discursive and institutional networks in which they are embedded.

Different conceptual practices have different such segments as their domain of inquiry. For example, the domain of a philosopher of psychology like Feest is the domain of cognitive systems plus the institutional and discursive network within which psychologists investigate such systems. Legal scholars equally do not study a domain like criminal law in isolation but look at how criminal law is enacted by lawmakers, judges, and guards in ministries, courtrooms, and prisons. The formation of new concepts allows humanities scholars to intervene in such segments of material-discursive reality. The target of discursive interventions are *issues* and *stakes*

within a segment of material-discursive reality. Without forming new concepts, practitioners would be unable to formulate issues and stakes explicitly, or even understand what is at issue and at stake in their practice at all.

Consider the following example from the discursive segment of labor and the workplace in the 1970s. In 1974, Lin Farley led a seminar on the topic "women and work" in the Human Affairs Program at Cornell University. Once the seminar participants realized that they were all dealing with the issue of unwanted sexual advances by men, they decided to hold a so-called speak-out session about it. The problem was that "the 'this' they were going to break the silence about had no name. 'Eight of us were sitting in an office of Human Affairs, … brainstorming about what we were going to write on the posters for our speak out. We were referring to it as "sexual intimidation," "sexual coercion," "sexual exploitation on the job." None of these seemed quite right. We wanted something that embraced the whole range of subtle and unsubtle persistent behaviors. Somebody came up with "harassment." *Sexual harassment!* Instantly we agreed. That's what it was'" (Brownmiller 1999, quoted in Fricker 2007, 150).

This example shows how the formation of concepts responds to and reconfigures what is at issue in a practice. The concept of sexual harassment was a response to unwanted sexual behaviours in the workplace. But that response did not merely change existing assumptions or introduce new ones about those behaviours. The concept of sexual harassment changed the normative status of the behaviours: from being tolerated, ignored, not spoken about, dismissed as mere flirting to being a performance that is altogether *inappropriate* in the workplace. The discursive intervention changed the way women could take hold of holding these acts and their perpetrators accountable. It opened up an entirely new field of actions for women in the workplace.

The example of sexual harassment also shows why the formation of concepts is not only productive but also open-ended. In 1974, when the eight women in Cornell's Human Affairs Program exercised their capacities of forming new concepts, they wanted to find a way to hold unwanted sexual advances properly accountable in the workplace. By "operationally defining" the concept in the context of that issue, however, they did not exhaust the meaning of "sexual harassment." What is at stake in resolving an issue one way or another depends in part on how that resolution is taken up in a broader segment of discourse. Because conceptual practices have as their domain these broader segments of material-discursive reality, they can contribute to articulating the stakes of more narrowly construed domains and practices.

Fricker (2007) argues that what was at stake in calling out sexual harassment in the workplace was the removal of *hermeneutical injustice*. Fricker defines this concept as "the injustice of having some significant area of one's social experience obscured from collective understanding owing to hermeneutical marginalization" (2007, 158).

Fricker's definition illustrates the open-endedness of concepts because it retrospectively expresses what is at stake in conceptualizing unwanted sexual advances as sexual harassment. It enables us to see that before 1974, women were unable to make sense of their mistreatments because they were prevented from having proper epistemic access to their own experience in virtue of their membership in a marginalized group. This articulation of the stakes is a case of open-ended *formation* of concepts because Fricker uses the concept of sexual harassment as a *constitutive element* of the more general concept of hermeneutical injustice. It is encapsulated in the formulation "having some significant area of one's social experience obscured from collective understanding," around which Fricker can arrange the concepts "injustice" and "hermeneutical marginalization." Fricker thus uses the concept of sexual harassment as a tool to (re-)arrange existing concepts as constitutive elements of the novel concept of hermeneutical injustice.

Fricker's conceptual practice therefore exemplifies the applicability of concepts beyond the context in which they were initially developed. The operational use of "sexual harassment" to define hermeneutical injustice enables Fricker to intervene in another segment of discourse:

epistemology. By making the logic of sexual harassment a constitutive element of hermeneutical injustice, Fricker can argue that epistemologists have overlooked an important phenomenon: *epistemic injustice*. This phenomenon only becomes salient if one looks at parts of the discursive and institutional network in which knowledge is entangled in real life (the workplace). Methodological individualism and rational idealization prevented philosophers from exploring this broader network in their analysis of epistemic phenomena. Fricker's discursive intervention therefore implies that exercises of second-order conceptual capacities, such as analyses of testimony, should be held accountable to a broader set of issues than epistemologists traditionally envisage.

This wider articulation of the stakes of "sexual harassment" is contestable. One could argue that while hermeneutic injustice exists, sexual harassment is not an instance of it, or one could argue that while sexual harassment is hermeneutically unjust, it is not a case of *epistemic* injustice. Each of these objections tries to undercut one of the conceptual links Fricker sets up to argue that sexual harassment matters to epistemology. It therefore takes a considerable *commitment* of a practitioner to argue for and implement the changes in accountability that the concept implies. Performances that express these commitments include defending the concept's appropriateness against criticism such as the above in verbal or written disputes, the publication of articles using the concept in fields where changes in accountability should be implemented, training graduate students to apply the concepts to novel issues and contexts, and popularizing the concept outside academic discourse. Without this variety of performances by committed practitioners, it is unlikely that a newly formed concept will become a lasting part of a society's conceptual practice.

With the notion of a committed practitioner in place, we can now analyse the formation of concepts in conceptual practices as follows.

A member or a group of members of a conceptual practice P forms a novel concept C iff.

(i) they exercise a first-order conceptual capacity;
(ii) the exercise of that capacity responds to a novel issue in P;
(iii) responding to that issue partly consists in re-arranging existing concepts as constitutive elements of C; and.
(iv) the member or group of members are committed to the change in accountability that using C in P involves.

In this section, we developed this analysis by means of analysing the formation of the concept of sexual harassment and the concept of hermeneutical injustice. We discussed the unique ways in which the formation of new concepts in conceptual practice manifests the features of open-ended and productive scientific concepts introduced in the previous section. The formation of concepts is a conceptual capacity that allows practitioners to recognize and articulate patterns of concept use. It is productive because it allows practitioners to perform novel discursive interventions that respond to and reconfigure the issues of a practice. And it is open-ended because it can proceed in novel contexts that articulate the stakes of a practice in partial and contestable ways. In the next section we show that this notion can be extended to other cases in philosophy.

3 | FORMING HIGH-IMPACT CONCEPTS IN PRACTICE: TWO EXAMPLES FROM PHILOSOPHY

In this section we extend our analysis from the previous section to the formation and development of the concept of mechanism and the concept of performative utterances. Our discussion attempts to make sense of a variety of activities that philosophers using these concepts engage in. It also aims to reveal some of the open issues and stakes that come with using these concepts in other conceptual practices.

3.1 | The formation of the concept of mechanism in philosophy of science

The concept of mechanism is well known in science and philosophy since the advent of seventeenth-century mechanical philosophy of nature. This school articulated a semantic picture according to which "mechanism" refers to machine-like systems with fixed parts that interact with one another through mechanical forces. In philosophy of science, the perhaps decisive event that changed this semantic picture was the paper "Thinking About Mechanisms" (Machamer, Darden, and Craver 2000, commonly abbreviated as MDC). The MDC paper responds to the issue that in the biological sciences the concept of mechanism rarely, if ever, refers to machine-like push-pull systems (MDC, 2). The use of "mechanism" in modern biology does not fit the semantic picture articulated by the old mechanical philosophers.

The MDC paper responds to this issue by articulating a semantic picture that incorporates the previously unrecognized pattern of using the concept of mechanism in biology. It offers the reader the following definition:

> Mechanisms are entities and activities organized such that they are productive of regular changes from start or set-up to finish or termination conditions.
>
> (MDC, 3)

In this definition, the authors use their first-order conceptual capacities to re-arrange existing philosophical concepts and introduce novel concepts as constitutive elements of "mechanism" to respond to the lack of a satisfying philosophical understanding of biological mechanisms. The definition takes concepts from substance and process ontology ("entities," "activities"; see MDC, 4–5) and combines them with concepts from philosophy of science ("regularity," "cause," "function"; see MDC, 6–7).

This combination allows the authors to say that mechanisms in biology produce regular changes while avoiding the issue that the concept "universal law of nature" cannot be applied to the biological domain (see MDC, 7–8). They also introduce "set-up" and "termination conditions" as novel constitutive elements of the concept of mechanism because it is inappropriate to describe the initial parts and stages of the mechanism as "inputs" and "outputs" (see MDC, 11). The authors show that this definition adequately describes well-known neurobiological and molecular biological mechanisms. In these mechanisms, geometrico-mechanical activities known from seventeenth-century mechanical philosophy are only one kind of activity (see MDC, 14). By introducing three other kinds of activity, the MDC paper provides philosophers of science with novel resources to exercise their second-order *conceptual capacities*. Such capacities include analyzing scientific explanations of mechanisms and evaluating the experimental strategies that have led to the discovery of mechanisms and their working parts.

The MDC definition resolves the issue of analyzing biological mechanisms by emphasizing the role of activities (see MDC, 4). What is at stake in resolving the issue this way is that it prioritizes causal productivity in our conceptual understanding of mechanisms. This priority is what makes the MDC definition *productive*, because it allows the authors to specify three discursive interventions in philosophy and history of science. The MDC definition intervenes in philosophical debates about scientific explanation because it favors "revealing the productive relation" over regularities or universal laws of nature (see MDC, 21). It intervenes in debates about scientific discovery because it implies the historiographic maxim that "discoveries of new entities and activities…mark the changes in a discipline" (MDC, 14). And it intervenes in debates about scientific reduction because it replaces static two-place relations between theories with the dynamics of evaluating mechanistic models at multiple levels (see MDC, 23). The three discursive interventions are interconnected, because applying the MDC definition

to cases of mechanism discovery in biology shows that "entities and activities at multiple levels are required to make the explanation intelligible" (MDC, 23). Finally, the MDC definition privileges those conceptual capacities that use the mechanism concept to exercise these discursive interventions.

After the publication of the MDC paper, the literature on mechanisms in philosophy of science exploded. The paper's lasting impact was further fuelled by the commitment of two of its authors to rewrite discovery episodes in molecular biology and neurobiology in terms of mechanisms (Darden and Craver 2002; Craver 2003) and to provide a non-reductionist account of mechanistic explanation in neuroscience (Craver 2007). This mechanistic style of doing philosophy of neuroscience and history of biology is part of a broader conceptual practice known as *new mechanism* (Levy 2013). Its members are committed to the idea that philosophers of science should hold their analyses of explanations or experimental strategies and other issues accountable to the concept of mechanism. Holding these second-order conceptual capacities accountable to the concept of mechanism changes what is at stake in producing empirically and normatively adequate accounts of explanations or experiments in scientific practice.

The conceptual practice of new mechanism is not identifiable by philosophers who mechanically apply the same definition of "mechanism" or who presuppose a shared set of rules specifying when the application of this concept is correct. Instead, the productive use of the concept of mechanism is *open-ended*. Take the MDC definition. Each time philosophers use it productively as a tool for discursive interventions, they add existing or novel concepts as constitutive elements and drop other elements from the definition. Craver (2007), for instance, adds "phenomenon," "intervention," and "constitutive relevance" to argue that mechanistic explanations in neuroscience are multi-level, while dropping "set-up and termination conditions" in his account of mechanisms. Others add "information" to analyse cognitive mechanisms (Bechtel 2008), the method of "comparative process tracing" to craft a mechanistic approach to extrapolation (Steel 2008), or the concept "pattern" to characterize the norms of discovering mechanisms (Kästner and Haueis 2019).

These examples show that instead of a regularity there is a patchwork of overlapping but nonidentical uses of "mechanism," each of which is tailored to the issues to which mechanist philosophers respond. These applications share no presupposition about what mechanisms are. Definitions like the one in the MDC paper provide not fixed rules but contestable articulations of what mechanisms are. They are part of a productive and ongoing debate about what a definition of mechanisms should (minimally) accomplish (Illari and Williamson 2011). The conceptual practice of new mechanism is thus identifiable not by a behavioral regularity or shared presupposition but by the ways its members hold their performances mutually accountable. Practitioners can disagree over which definition of "mechanism" is accurate, or which account of mechanistic explanation is the best (Illari 2013), while still holding their second-order conceptual capacities accountable to the concept of mechanism. The MDC paper initiated this change in accountability by providing a contestable formulation of what philosophy of science is about. It is about mechanisms.

While the concept of mechanism developed by new mechanists has been productive and open-ended in philosophy of the life sciences, its *applicability* outside this original context has been somewhat limited. Consider, for instance, analytical sociology, which emphasizes that good explanations of social phenomena should identify the causal mechanisms that connect two variables of a social regularity. It appears as if exercising this method requires sociologists to hold one another accountable to some definition of the concept of mechanism from the literature in philosophy of science. As Illari and Russo (2014) note, however, the literature on mechanisms in both fields largely moves in parallel. Rather than engaging with the philosophical literature, social scientists argue that what is at stake now is producing "good exemplars of analytical sociology rather than, say, in engaging in further debates about the proper mechanism definition" (Hedström and Ylikowski 2010, 64).

At the same time, philosophers of science often find it challenging to incorporate specific characteristics of the social domain into their mechanistic accounts. Consider, for example, Steel (2008), who aims to build a mechanistic approach to extrapolation in biology and the social sciences. According to Steel, a causal generalization can be extrapolated to a target population by comparatively tracing causal differences between the mechanisms in model and target populations. The mechanistic approach to extrapolation presupposes that "interventions at a given point in the [causal] structure leave downstream causal relationships unaltered" (Steel 2008, 154). Interventions into social structures like welfare programs, however, do not fulfil this condition. They instead alter the social structure such that the target population behaves differently from the model population. Structure-altering interventions make it unclear whether social scientists can use comparative process tracing as a method of extrapolation (see Steel 2008, 166).

In sum, we have shown that the four features of scientific concepts from section 2.2 and the analysis of the formation of new concepts from section 2.3 can be used to spell out how the concept of mechanism has changed the way in which many philosophers of science hold their second-order conceptual capacities accountable. Exercises of these capacities have led to novel accounts of explanation, discovery, and extrapolation. We have shown that although use of the mechanism concept has been productive and continues to be open-ended, its applicability beyond the life sciences is an unresolved issue in current conceptual practice. What is at stake in resolving this issue depends on the significance of the mechanism concept to understand explanation and discovery in other scientific practices, such as the social sciences.

3.2 | The formation of the concept of performatives: Philosophy of language and beyond

We turn now to discussing the concept of *performatives* to show that the formation of concepts is central not only to philosophy in particular but also to the humanities as conceptual practices in general. We do so by first discussing the wide range of discursive interventions this concept enables in different conceptual practices, ranging from its initial domain of philosophy of language (Austin 1962) to literary theory, gender studies, and sociology of science (Culler 2000; Gond et al. 2015). We then turn to a characteristic risk associated with high-impact concepts: the risk that its wide applicability can let a concept degenerate into becoming a fashionable label that fails to do any productive work (Bal 2002).

Austin (1962) formed the concept of performatives in philosophy of language to challenge the semantic picture of linguistic utterances as referring to *states of affairs* in virtue of which they can be true or false. The issue that he responded to is that various uses of utterances do not describe states of affairs but instead *perform* the action they refer to. Paradigmatic examples are performing a promise by saying "I promise to pay you" or performing the act of marriage by saying "I do" when being asked "Do you take this woman/man to be your lawful wedded wife/husband?" by a civil official or priest in a wedding ceremony. These performatives are not true or false, depending on whether what they refer to is the case or not. Instead, they either perform the action they refer to appropriately or inappropriately, depending on the circumstances in which they are uttered. According to Austin, performatives can be normatively evaluated only when they are uttered "seriously," not when they are part of, say, a theatrical performance or literary speech (see 1962, 22). Whether performatives are appropriate or inappropriate depends on the social conventions in the context of utterance, for example the social conventions of a wedding ceremony.

Austin's work on the concept of performatives is productive because it allows philosophers of language to undertake (at least) two different discursive interventions. Each has different consequences for our semantic picture of linguistic utterances. The first intervention is Austin's

distinction between *constative* utterances, which refer to states of affairs, and *performative* utterances, which perform the actions they refer to (see 1962, 3, 6, and passim). This intervention implies that our previous semantic picture of linguistic utterances was not altogether erroneous but rather incomplete: it recognized only one type of speech act where there are at least two, if not more. This intervention entails an appeal to philosophers of language to hold their second-order conceptual capacities (for example, analyzing the semantics of utterances) accountable to the concepts of constatives and performatives.

The second intervention is based on Austin's distinction between three elements that constitute the concept of performative utterances. The first element is the *locutionary act* of uttering a sentence. The second element is the *illocutionary act* being performed by speaking it (a promise, an assertion, and so on). The third element is the *perlocutionary act*, the effect achieved by the illocutionary act, such as reassuring or conveying knowledge to someone. According to this distinction, constative utterances are just *one* among many illocutionary acts, namely, those which assert that such and such is the case. Constatives have "no unique position" as a separate class of speech acts (Austin 1962, 148). Pursuing this second kind of intervention challenges our semantic picture of linguistic utterances more profoundly. It moves constatives from being "a model of all language" to them being "only one aspect of language use" (Culler 2000, 506). This intervention implies that the concept of performatives has a prior role in holding semantic analyses of utterances accountable, and that such analyses need to take to take ordinary social contexts of use into account.

Austin's concept of performatives is not only productive but also allows for *open-ended* conceptual activity. Like the MDC definition of mechanisms, Austin's definition of performatives provides only a contested formulation of what performatives are and what is at stake in integrating them into our semantic picture. Consider, for instance, how Kukla and Lance (2009) use the first intervention to provide a typology of speech acts that moves beyond the focus on declarative sentences. They place performatives alongside other speech-act types, such as *observatives*, which express one's recognition of empirical facts, or *vocatives*, which one uses to hail or call another person. Yet, they also argue that unlike these other types, performatives do not "share a single characteristic normative function" (Kukla and Lance 2009, 90). If we follow Kukla and Lance, then speech-act types *other than* performatives seem crucial to understanding the performative function of language.

Regarding the second discursive intervention, consider the infamous debate between Derrida and Searle over what is at stake in analysing illocutionary acts (see Farrell 1988 for discussion). To summarize the main differences crudely, Searle (1969, 23, 44–45) rejects Austin's distinction between locutionary and illocutionary acts and argues that the meaning of an illocutionary act is fixed by a combination of the *speakers' intention* and the *constitutive rules* of a language that govern the literal use of the words. In contrast, Derrida (1977) argues that speakers' intentions fail to fix the meaning of illocutionary acts. Instead, he proposes that illocutionary acts must be *iterable* and *citable* in both literal and non-literal circumstances. What is at stake in resolving this issue one way or another is whether the performative function of language should be understood as a relation between speakers' intentions and rule-governed linguistic communities (Searle) or as a relation between different signs and their iterability (Derrida).

In contrast to the concept of mechanism, the concept of performative utterances has gained widespread *applicability* beyond the philosophical context within which it has been developed. Contrary to Austin's exclusion of "non-serious" uses of performatives, literary theorists extended his concept to analyse the performative function of literary discourse. For this extension, the differences between the two interventions in philosophy of language is largely irrelevant (see Culler 2000, 506). What matters to literary theorists is the switch from a model where language is essentially about stating facts to a model that emphasizes the active and creative role of language. Literary statements are performative because they do not refer to prior states of affairs but rather *create* the literary characters, actions, and situations that they refer

to. But what is it that makes such literary performatives appropriate? The coherence with other parts of the same work, the accordance with the genre it belongs to, or some general conditions for being accepted as published literature? These are different resolutions of the "problem of what it is for a literary sequence to work" (Culler 2000, 508). By making this issue central to appropriate analyses of literary texts, the concept of performative utterances transforms the way (or ways) literary theorists should hold exercises of their second-order conceptual capacities accountable.

Another prominent extension into the humanities is the concept of *performative gender* by Butler (1990). Butler's re-formation of the concept of performatives responds to the issue whether women need to share any common or essential features in order to organize as a political group with common goals and interests. Butler's answer is a clear no, because gender is not what one is but what one does. The form of those repeated acts (Derrida's emphasis on iterability) is established by social convention (Austin's emphasis on social context). An example of gender performatives are the doctor's utterances "It's a boy!" or "It's a girl!" after a woman has given birth to a baby. According to Butler, those utterances do not merely declare the biological sex of the baby. They also form the first element in a long chain of performatives that enact the gender of the newly born person. Consequently, Butler's model of performatives does not assume a gender-free subject who voluntarily chooses her gender. Rather it implies that someone only *is* a subject of discourse by being addressed and being addressable via a gender role. Performing that role is not voluntary but rather an assignment established by social conventions. To support her claim, Butler incorporates the model of authoritative speech into the concept of performative utterances (see Culler 2000, 514). Repeated ways of speaking create authority, and what is at stake in changing gender roles in society is to break with those established ways of speaking.

Even further applications of the concept can be found in science and technology studies. In this conceptual practice, scholars often investigate the performative role of scientific statements, scientific statements that bring about what they refer to. An example is the *performativity of economics thesis*, according to which economics does not simply observe but also shapes and formats the economy. For example, although the Nobel Prize–winning Black-Scholes-Merton formula initially had low predictive power, it reshaped how stock traders held one another accountable. Consequently, the formula predicted prices on derivative markets more accurately (see Gond et al. 2015, 8). Like the performative concept of gender, these uses of "performative" emphasize the *effects* of performatives (perlocutionary acts) rather than their linguistic character.

Pushing even further in that direction, Barad (2003, 803) proposes to extend the concept of performatives beyond *linguistic* acts to "incorporate important material and discursive, social and scientific, human and non human, and natural and cultural factors" (2003, 803). This concept is part of Barad's *agential realism*, a metaphysical alternative to representationalism. Representationalism assumes that there are "two distinct and independent kinds of entities—representations and entities to be represented" (804). One way to explicate agential realism is that it gives not only methodological but also metaphysical primacy to conceptual capacities. Concepts do not exist as independent entities at all; they exist *only* through the repeated performances of conceptual capacities. Barad's concept of performatives therefore dissolves the distinction between illocutionary and perlocutionary acts. By exercising conceptual capacities, we directly *change* the way a segment of material-discursive reality is carved up into entities (see Rouse 2015, chap. 10, and Cappelen 2018, chap. 12, for similar positions in philosophy of science and language).

In sum, we have shown that the concept of performatives is open-ended and productive because it provides philosophers of language with novel conceptual resources (performatives, illocutionary and perlocutionary acts, and so forth) to hold their analyses of linguistic utterances accountable. We have also shown that the concept is widely applicable

because other humanities researchers can use it to respond to novel issues by emphasizing different elements of the concept. The concept of performatives can be applied to understand fictional language, emphasizing self-reflexivity (literary theory), it can be applied to understand the production of social identities such as gender roles, emphasizing iterability (Butler, Derrida), it can applied to understand scientific language, emphasizing how theories become reality (Callon), and it can be used to understand the ontological process "how matter comes to matter" (Barad).

An open issue in these conceptual practices is how their different semantic pictures of "performative" relate to one another. Is the wide-reaching trajectory indicating that scholars in different fields have in fact formed various novel concepts while continuing to use the same linguistic term? Or has "performative" even degenerated into an *empty label* that is used so variably that it can seem, at least to those not too familiar with the relevant debates, that the concept comes to mean anything and everything (see Bal 2002, 23)? Or do the different uses bear systematic relationships that reveal similarities between the different phenomena that humanities scholars conceptualize as "performative"? In line with the normative conception, we claim that these questions cannot be decisively settled: any answer is provisional. Yet, every earnest answer is an attempt to resolve the issue in a specific way and thus will change the significance of using the concept to understand phenomena of our material-discursive reality.

4 | CONCLUSION

We have argued that the discursive dynamics of high impact concepts in philosophy and other parts of the humanities can be analysed by looking at how scholars hold their conceptual capacities mutually accountable, and by analysing whether the terms that mark these changes are productive, open-ended, and applicable to novel contexts. Based on this account, we have also provided an analysis of the formation of new concepts as a conceptual capacity of committed researchers who respond to a novel issue by re-arranging existing concepts as constitutive elements of a novel concept. We have demonstrated the utility of this analysis by discussing three cases in which humanities scholars have formed a new concept: the concept of hermeneutic injustice, the concept of mechanism, and the concept of performative utterances. Thereby, we have outlined what we deem a central but so far under-appreciated element in a methodology of the humanities. Since we have restricted our exposition to the analyses of high-impact concepts, it remains to be seen whether this account can also be applied to concepts in the humanities that do not have such wide-ranging ramifications.

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