

## Natures, Ideas, and Essentialism in Kant

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*Abstract:* Despite recent essentialist approaches to Kant's laws of nature, it is unclear whether Kant's critical philosophy is compatible with core tenets of essentialism. In this paper, I first reconstruct Kant's position by identifying the key metaphysical and epistemological features of his notion of 'nature' or 'essence'. Two theses about natures can be found in the literature, namely that they are noumenal in character (*noumenal thesis*) and that they guide scientific investigation as regulative ideas of reason (*regulative thesis*). I argue that Kant's notion of nature does not entail the noumenal thesis and, based on his model of causal explanation, I propose a novel, *phenomenal thesis*, that allows for a better understanding of the function of natures as regulative ideas. In the last part of the paper, I show that Kant's 'essentialism' is a genuine form of essentialism committed to *de re* modality, although it differs in several respects from major contemporary essentialist accounts. I conclude by suggesting that Kant's essentialism (if appropriately updated) can be relevant to the contemporary debate, which has so far been dominated by Humean and Aristotelian proposals.

*Keywords:* essence, power, explanation, modality, Kant

### 1. Introduction

In recent years, an 'essentialist' view of philosophy of nature has gained adherents in Kant scholarship (e.g. Watkins, 2005; Kreines, 2008, 2017; Stang, 2016; Messina, 2017; Massimi, 2017; Hoffer, 2022; Spagnesi, 2023). Despite significant differences, essentialists agree that, for the critical Kant, the empirical laws of nature are grounded in the 'natures' or 'essences' of things.<sup>1</sup> The essentialist view challenges other approaches to the philosophy of nature in Kant, such as Friedman's reading (Friedman, 1992) and the Best System accounts (e.g. Brittan, 1978; Kitcher, 1986),<sup>2</sup> and it has itself been challenged in some of its central ideas (see especially Engelhard, 2018).

Interestingly, this is not the first time that Kant's alleged essentialism has been debated in the literature. In the wake of Putnam and Kripke, scholars have asked whether Kant's philosophy contains traces of essentialism. The almost unanimous response has been that, apart from similarities between Kant's remarks on reference and semantic externalism, his critical philosophy remains incompatible with core essentialist tenets (Kroon & Nola, 1987; Anderson, 1994; Hanna, 1998). As they point out, Kant's critical philosophy simply cannot accommodate the kind of metaphysical or *de re* modality that is required for a genuinely essentialist position.<sup>3</sup>

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<sup>1</sup> Both terms are textually justified (when applied to existing things; see section 2). Here and in the rest of the paper, 'essence' without qualification means 'real essence'.

<sup>2</sup> See Messina (2017) and Engelhard (2018) for thorough analyses of these accounts.

<sup>3</sup> See Anderson (1994) and Hanna (1998) for an emphasis on metaphysical necessity; Kroon and Nola (1987) for an objection to Kant's natural philosophy as being hospitable to *de re* necessity.

A question naturally arises: is the critical Kant an essentialist? In other words, is Kant's critical philosophy compatible with the assumption of essences? And does Kant have any good reason (or any reason at all) to be committed to them? Unfortunately, textual evidence is inconclusive for settling these questions. To answer them, some preliminary exegetical work is required. More specifically, we need to find out (1) what a nature (and specifically, the nature of an empirical object) is and (2) what sort of representation we have of it (and how such a representation functions in inquiry) in Kant's critical philosophy.

With regard to (1), several scholars in the literature assume that natures of empirical objects at least in part are (or have their source in) noumenal objects that transcend experience. This assumption has been made either to accept or to reject natures in Kant's philosophy. I shall call this the *noumenal thesis* about natures. (2) is a less discussed aspect of natures among essentialists, but it is plausible that a nature is to be represented as a regulative idea of reason that guides inquiry. I shall call this the *regulative thesis* about natures.

In this paper, I suggest that the noumenal thesis is incorrect (either if used to accept or to reject natures in Kant's philosophy) and that holding to it also jeopardizes the possibility to vindicate the potential of the regulative thesis, namely that natures can play an important role in scientific investigation as ideas of reason. I will then propose a different, *phenomenal* reading of natures that—in my view—better resonates with Kant's critical conception of natural science and his theory of ideas. In short, I will defend the following two theses:

**Phenomenal Thesis:** The nature of an empirical object is the total set of phenomenal powers that causally grounds its determinations.

**Regulative Thesis Revisited:** Although we cannot know natures, their concepts retain a key regulative role as ideas. Ideas of natures (as total sets of powers) can be approximated and therefore have a legitimate prescriptive role for empirical investigation.

By combining these two theses, I submit that we can better address the key question of whether Kant is an 'essentialist' about philosophy of nature. I will show that, despite previous objections, Kant's philosophy of nature can be regarded as a genuine form of essentialism since it is committed to *de re* modality. I also wish to suggest that Kant's essentialism differs from major contemporary proposals (since it is metaphysically modest and epistemologically fallibilist) and has the potential (if appropriately updated) to be relevant to the contemporary debate, which has so far been dominated by Humean and Aristotelian proposals.

The structure of the paper is as follows. In section 2, I will briefly describe what I take to be the three identifying features of natures. In section 3, I will present two common theses about natures: the noumenal thesis, the regulative thesis, and how they are related to each other. In section 4, I will criticize the noumenal thesis and propose my own phenomenal thesis about natures, based on Kant's model of causal explanation. In section 5, I will use the results of my analysis to revisit some core aspects of the regulative thesis. In the final section of the paper, I will combine the phenomenal thesis and the revisited regulative thesis to show that Kant is committed to an unusual but genuine form of essentialism. I conclude by briefly highlighting how Kant's proposal can be relevant to contemporary essentialism.

## 2. Three features of Kant's 'natures'

In this section, I set the stage for my analysis of Kant's essentialism by briefly presenting what I take to be the key features of Kant's 'natures'. The term 'nature' (*Natur*), and the closely

related term ‘essence’ (*Wesen*) are often encountered in Kant’s writings. However, he develops systematic considerations about them mostly (but not exclusively) in unpublished writings, especially in his lecture notes on metaphysics and logic. Kant’s lecture notes require special treatment. Kant usually lectures on texts by other philosophers, and it is not always clear when he is speaking in his own voice. Further, these texts are transcripts or elaborations by students—it is therefore not advisable to take them at face value. Since I gather information from these texts, some methodological considerations are in order.

Following a consolidated practice in the scholarship, I think that lecture notes are worthy of study. In his lectures, Kant is not only paraphrasing the theses of others, but—at least in some cases—also intervenes in them. Second, Kant’s critical philosophy is not a complete departure from the logic and metaphysics that was taught at his time. This continuity is especially true for what we are concerned with here, namely a specific metaphysical concept (‘nature’) and general notions of logic. In the *Critique of Pure Reason*, Kant says that one should look to “ontological textbooks” to complete his system (see A82/B108; A204/B249),<sup>4</sup> and the logic of his time clearly lies in the background of Kant’s system. Third, despite the scant authority of these texts, the fact that similar remarks can be found in multiple notes and that some of them find independent confirmation in critical texts makes the use of these texts methodologically acceptable. Let me add a final consideration. Although I rely on unpublished writings in this section, this will not be the end of my reconstruction. The main purpose of the next sections will be precisely to evaluate Kant’s position *vis-à-vis* key tenets of his critical philosophy.

What is ‘nature’ for Kant? A first important remark is that by ‘nature’ here is meant the *nature of something*. To use Kant’s words, nature can be taken either in its substantive or in its adjectival meaning (A418-9/B446). The former corresponds to nature as a whole (or “the sum total of appearances”); the latter to the specific nature of a thing (“the ‘nature’ of fluid matter, of fire, etc.”; *ibid.*). It is the latter sense that is at issue here. Kant defines this sense of ‘nature’—or better, ‘a nature’—<sup>5</sup>in several places. At the beginning of MAN, we find its definition as “the first inner principle of everything that belongs to the existence of a thing (*das erste, innere Princip alles dessen, was zum Dasein eines Dinges gehört*)” (MAN, 4: 467). Variations of this definition can be found throughout his lectures: “nature is the internal first ground (*Grund*) of that which belongs to the actuality (*Wirklichkeit*) of a thing” (V-Met-L1/Pölitiz, 28: 215); “nature is the first general inner objective principle (*Princip*) of all that which belongs to the existence (*Dasein*) of the causality of a thing” (V-Met/Mron, 29: 933); or nature is “the innermost ground (*Grund*) of a body” (V-Lo/Wiener, 24: 840). I argue that the following three key features characterize ‘natures’ for Kant:

### **(i) Real grounding**

The nature of something is a ground (*Grund*) or principle (*Princip*), and it is a ground or principle that concerns a *thing*. Kant has a special term for grounds that concern things, namely “real grounds”—natures therefore establish *real grounding* relations.<sup>6</sup> As real grounds, natures must be distinguished from “logical grounds”. A logical ground is the ground of what I think in a concept as its consequences (or predicates). The relation between a logical ground and its predicates is analytic (see e.g. V-Met-L2/Pölitiz 28: 553). For example, the concept <gold> is the ground of the predicate ‘yellow’, and ‘yellow’ is analytically contained in the concept <gold> (see Prol 4: 267). In a real ground, on the other hand, the relation between the ground

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<sup>4</sup> Translations are quoted from *The Cambridge Edition of the Works of Immanuel Kant* (1996–) and the quotation rules followed are those established by the *Akademie Ausgabe*, Kant, I. (1900–). *Gesammelte Schriften*.

<sup>5</sup> I will henceforth use ‘a nature’ to refer specifically to the adjectival meaning of nature.

<sup>6</sup> Kant calls natures “real grounds” at V-Met/Mron, 29: 821.

and its consequences (or predicates) is synthetic. The predicates are not already contained in the concept of a thing but must be synthetically added to it. For example, ‘dissolving in aqua regia’ is a synthetic predicate of gold added to its concept through experience.<sup>7</sup> For the critical Kant, synthetic predicates can also be added a priori, for instance through pure intuition. To use a Kantian example, that the angles of a triangle are equal to two right angles is an a priori synthetic predicate of triangles (see V-MS/Vigil, 29: 969).

Kant often contrasts natures with “logical essences” and “real essences”. Natures, as real grounds, cannot be logical essences since a logical essence is nothing but a primary logical ground: as he puts it, the “first ground of everything that I think in the concept of the thing” (V-Lo/Blomberg, 24: 116). The distinction between natures and real essences is more subtle since it involves the modality of the grounded thing. For Kant, a real essence is the “first ground of possibility” (Log, 9: 144) or the “first inner principle of all that belongs to the possibility of a thing” (MAN, 4: 467 n.). He claims that real essences and natures are to be distinguished for objects that are possible but do not “exist for themselves” (V-Met/Mron, 29: 820), or whose concepts do not “express an existence” (MAN, 4: 467 n.). For example, a possible triangle has a real essence, but not a nature. However, these two notions coincide when they are applied to things that “exist for themselves”. But what kind of existence is Kant talking about here? A brief clarification is in order.

One might think that Kant here contrasts ‘possibility’ with the sense of existence as a non-predicate, i.e. “positing” (e.g. A598/B626). Upon reflection, however, this contrast would make little sense. First, textual evidence suggests that in this case existence is expressed by something that is “thought in a concept” (MAN, 4: 467 n.), i.e. a predicate. Second, the relevant contrast seems to be between essences of abstract things and of things that exist in a concrete way (see also Stang 2016, p. 238). Sometimes Kant glosses this sense of existence in terms of effectiveness (“things which have a principle of effectiveness”; V-Met/Herder, 28: 49). If this is correct, existence *qua* effectiveness can be treated as a predicate. And if effectiveness is a predicate of some things, I agree with Stang that it is either part of the real essence of those things (one of its essential properties) or it results from it (2016, pp. 239-40; see also V-Met/Mron, 29: 820-1). In other words, some things are essentially existing or effective. For this reason, Kant in many places uses real essence and nature interchangeably in relation to things that exist in nature.<sup>8</sup>

Finally, nature is not only a real ground but a “first” and “inner” ground. I will elaborate on these features below, but for the moment I take them to mean that natures are real grounds in a fundamental (“first”) and non-extrinsic (“inner”) way. In other words, natures are not themselves grounded by anything else (as natures) and do not involve relations to external things.

## (ii) Causality

The second feature we need to clarify is the type of real grounding relation that a nature establishes. I agree with Massimi (2017) that natures are causal grounds. In his lectures, Kant distinguishes between the ground of being (*ratio essendi*) and the ground of becoming (*ratio fiendi*; see e.g. V-Met/Mron, 29: 809). I see this distinction as parallel to that between ‘real essence’ and ‘nature’: the *ratio essendi* is the ground of what belongs to the possibility of a

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<sup>7</sup> Kant uses an analogous example: “citric acid dissolves crab’s eye” and links it to Newton’s “dynamical” mode of explanation (V-Met-L1/Pöhlitz, 28:210; more on this mode of explanation below).

<sup>8</sup> Thus, ‘nature’ and ‘(real) essence’ are both legitimate terms. Since the focus of these papers is on existing things, I privilege the term ‘nature’.

thing (e.g., three sides are the ground of three corners in a possible triangle); the *ratio fiendi* of an existing triangle is instead “ink and quill”. The ground of becoming is the ground of the triangle considered in actuality or existence (*qua* effectiveness; see also V-Met/Mron, 29: 844). But “ground of the actuality of a determination or of the substance” is how Kant defines ‘cause’ in several places (V-Met-L2/Pölitiz, 28: 571; V-Met/Mron, 29: 843).<sup>9</sup> Since, as we have seen, nature is the (first and inner) ground of what belongs to the actuality or existence of a thing, it is *ratio fiendi* and, therefore, cause.<sup>10</sup>

Kant spells out what is contained in the essence or nature of something as the “complex of essential properties” (*essentialia*; e.g. V-Met-L2/Pölitiz, 28: 530). In line with the analysis carried out so far, I submit that the properties that compose a nature are causal properties. For Kant, the causality of a substance (such as an existing object) is “power” (e.g. A648/B676).<sup>11</sup> The causal properties that compose natures are, properly speaking, powers or causal powers (*Kräfte*). We can thus give the following *prima facie* definition of the nature of an object  $x$  ( $n_x$ ):

$n_x$  is the complex of powers that causally ground all synthetic predicates or determinations of  $x$ .

Let me remark that, for this definition to hold, the causality of a complex of properties must be shared by all the properties that make up the essence. One might argue that this is not necessarily the case since a complex of properties can be causal and yet contain non-causal properties. Note, however, that a non-causal property either makes no contribution to the causality of the complex, and is therefore not part of the nature of a thing; or it makes a causal contribution, but in that case, it would indeed be causal and therefore part of the nature of the thing as one of its powers.<sup>12</sup> Thus, the definition above does not entail the implausible result that objects do not have non-causal properties, but simply that they are not part of their nature.

### (iii) Unknowability

For Kant, to know the nature of a thing requires an unattainable complete experience of it, i.e. knowledge of the totality of facts concerning that thing. A clear expression of this thought can be found in the Vienna Logic:

To have insight into the real essence exceeds human understanding. We cannot provide a complete ground for a single thing. This requires a universal, complete experience, and to obtain all possible experience concerning an object is impossible; we cannot explain any thing in nature a priori and without any experience, because the understanding cannot speculate about that with which it is not acquainted. The real essence is also called the nature. (V-Lo/Wiener, 24: 840; see also e.g. V-Met/Mron, 29: 820-1)

Although we cannot know the natures of things, we can still ask what the concept of a nature would be like *if we knew it*. Kant answers this question. It would be its “complete concept” or “real definition”.<sup>13</sup> The lectures also tell us about what a real definition contains. A real definition contains the “internal marks” of a thing (i.e. the marks concerning that thing alone)

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<sup>9</sup> The term ‘determination’ (*Bestimmung*) is often used in relation to natures. Kant, for example, says that nature is the “first inner real ground of all determinations of a thing” (V-Met/Mron, 29: 820). I take determinations to be synthetic predicates or properties of existing things (e.g. V-Met/Mron, 29: 821).

<sup>10</sup> In the first *Critique*, Kant says that nature “signifies the connection of determinations of a thing in accordance with an inner principle of causality” (A418-9/B446).

<sup>11</sup> For an analysis of the concept of substance see Spagnesi (2024).

<sup>12</sup> Kant, for example, says: “for powers belong to nature because actuality belongs to nature. If a substance is actual, then it has power insofar as it can be the ground of something else” (V-Met/Mron, 29: 934).

<sup>13</sup> “For to define *realiter* is to indicate all the marks which, taken together, constitute the whole. And a real definition is thus the *completudo* of the marks that belong only to the thing itself” (V-Lo/Blomberg, 24: 270). See also Log, 9: 59; V-Lo/Blomberg, 24: 107.

from which one can derive all its other marks (e.g. V-Lo/Blomberg, 24: 107 and 115). Internal marks are sufficient for the derivation of all other marks if: (i) each mark cannot be derived from other marks, i.e. they are “primitive” or basic; and (ii) the list of basic marks is complete (see V-Lo/Dohna, 24: 727).

It is worth noting that (i) and (ii) imply two different kinds of relations for Kant: (i) is a “subordination relation” between marks, i.e. marks stand “under” one other (as ground and consequence); while (ii) is a “coordination relation”, involving marks that have equal standing and are added to one other (see e.g. Log, 9: 59-61; V-Lo/Wiener, 24: 834-5). This model of definition can be applied to the concept of a nature. Indeed, Kant says:

The complex of all the essential parts of a thing, or the sufficiency of its marks as to coordination or subordination, is the essence. (Log, 9: 61)

I propose that (i) maps onto the relation between what Kant calls “basic” and “derivative” powers, i.e., so to speak, brute powers that cannot be further reduced and powers that can be reduced to other powers (e.g. V-Met/Mron, 29: 770);<sup>14</sup> and (ii) contains the complete list of all “basic powers” composing a nature. To know the nature of a thing is thus to cognize all the basic and derivative powers that causally ground its determinations.

One might here object that we cannot apply this model to natures since the latter cannot be known. I disagree—Kant is presenting a general model of definition. It does not follow from the fact that we cannot fully know natures through experience that the model cannot be applied to them. It follows that we can never provide a fixed, complete definition of an object given to us through experience.<sup>15</sup> As Kant often remarks, the marks of empirical concepts are changeable and we never know whether they are complete (e.g. V-Lo/Wiener, 24: 922; V-Lo/Blomberg, 24: 117). Further, this model has the merit of informing us of the specific reasons for the unknowability of natures. Two sources of unknowability can be identified. At any given point of our empirical investigation, (i) we cannot know whether we have identified basic powers; and (ii) we cannot know whether we have identified all series of powers. In other words, for any number of powers of an object that we have discovered, we still do not know whether these powers can be further unified. And even if we manage to unify the powers of an object, we still do not know whether the object possesses other powers (see e.g. V-Lo/Wiener, 24: 922).

### 3. Two theses about natures

As we saw in the previous section, Kant elaborates on the features of natures mainly in his lectures on logic and metaphysics. Although we find some independent confirmation of his claims in published writings of the critical period, this is at best a clue that natures play some role in Kant’s critical philosophy—not decisive textual evidence. In this section, I examine whether the concept of a nature is compatible with Kant’s mature philosophy. To do so, we need to understand (1) what a nature (and specifically the nature of an empirical object) is and (2) what sort of representation we have of it (and how such a representation functions in inquiry) in Kant’s critical philosophy.

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<sup>14</sup> For Kant, the reduction to basic powers is the main task of natural science; see e.g. V-Met/Mron, 29: 772 and MAN, 4: 534.

<sup>15</sup> See V-Lo/Wiener, 24: 839-40: “When we abstract the marks of our concept, we have the logical essence. But if we investigate the innermost ground of a body, then I will cognize its nature, i.e., its real essence.” See also V-Lo/Dohna, 24: 728. For a similar emphasis of the endless character of scientific investigation (albeit within a non-essentialist framework) see Hanna (2000, 28; 2006, 237).

Before looking more closely at (1) and (2), I would like to make a couple of provisos. By ‘critical philosophy’ here I mean (loosely) the set of doctrines that can be found in the *Critiques* and the texts that revolve around them. A key distinction that Kant makes in this corpus is that between phenomena and noumena. In my view, understanding whether the concept of a nature is compatible with Kant’s mature philosophy is (also) to shed light on how natures relate to this fundamental distinction. Moreover, while the concept of a nature can be applied to noumena and phenomena, the main target of my present discussion are natures of phenomena, i.e. the natures of empirical objects. It is here, I believe, that the crux of the matter lies. Kant’s typical examples of ‘natures’ concern empirical entities such as matter, physical and chemical elements—what we would today call ‘natural kinds’.

As for what natures are (1), a quick look at the three defining features above seems to point towards their ‘transcendence’ with respect to experience. Natures are unknowable, ultimate grounds—in my reconstruction, total sets of powers causally responsible for the determinations of things. In the literature, several scholars assume what I call the noumenal thesis about natures of empirical objects. It states:

**Noumenal thesis:** Natures are transcendent because they at least partially are (or have their source in) things in themselves or noumenal objects.<sup>16</sup>

The way I spell out the thesis is meant to accommodate different versions of noumenalism about natures of empirical objects. For some, natures of empirical objects are just noumenal objects (e.g. Anderson, 1994, p. 370; Hanna, 1998, p. 512; Kreines, 2008, especially sections 4-5; see also Kreines, 2017; Massimi, 2017). For others, only a part of a nature contains noumenal features (Messina 2017, p. 147; Hoffer, 2022, n. 26). Another possibility is to say that, while natures as such are not noumenal, they have their ultimate source in things in themselves, i.e. natures can be reduced to the properties of things in themselves.<sup>17</sup>

I submit that the noumenal thesis lies at the background of both rejections and acceptances of natures in Kant’s metaphysical inventory. Some scholars have suggested that postulating (or even pretending to know) noumenal natures in Kant’s metaphysics is an instance of the illegitimate pretension of reason to determine things as they are in themselves (Anderson 1994; Hanna 1998). In other words, essentialism about natures would be a form of transcendental realism (taking appearances as things in themselves)—Kant cannot be committed to it. Note, however, that the admission of noumenal natures in Kant’s critical philosophy need not be in the categorical mode. One can make the weaker claims that (i) if there are natures, they partially are (or have their source in) things in themselves; and (ii) that we do not know whether there are natures or what their content is. By emphasizing (i) and (ii), it seems possible to make room for noumenal natures in Kant’s critical philosophy (see especially Kreines, 2008, 2017; Messina, 2017; Hoffer, 2022).<sup>18</sup>

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<sup>16</sup> For Kant, things in themselves are *noumena*, i.e. things that we can think. He distinguishes between negative and positive noumena (B307). I follow Willaschek (2018) in characterizing negative noumena as “objects with respect to which we *abstract* from the sensible way in which we intuit *it*” (p. 140) and positive noumena as “objects of a hypothetical non-sensible or intelligible intuition” (p. 141). Since thinking of noumena as natures requires a positive characterization of them, I submit that the noumenal thesis targets noumena in their positive sense.

<sup>17</sup> For an extensive criticism of this latter view (which, however, takes a different line from my own) see Langton (1998).

<sup>18</sup> Another interpretive option is to provide justification for why we know noumenal properties of natures. Chignell (2022) gives a fascinating account of “straddlers”, i.e. noumenal properties that “shine through” into appearances. Although he does not seem to include powers among straddlers, I believe that his account can (at least in principle)

The noumenal thesis undoubtedly has advantages as an interpretive option. If correct, the grounding relation between a nature and the determinations of a thing can be read as exemplifying the more general grounding relation between noumena and phenomena. The thesis further provides a sound, non-epistemic grounding of empirical laws that does not make the status of laws dependent on our faculties. Finally, it offers a clear rationale behind the unknowability of natures: we cannot know natures for the same reason that we cannot know things as they are in themselves.

I wish to suggest, however, that the noumenal thesis, even in this weaker version, has puzzling implications that are not easily reconcilable with Kant's critical philosophy. While I do not exclude that there are strategies for resisting the following objections, I take them to put pressure on the noumenal thesis and to justify the need for an alternative interpretation.

- (a) If natures are (at least partially) noumenal grounds of the determinations of empirical objects and if laws of nature are grounded in them, then the modality of laws of nature would also be noumenal. For Kant, laws of nature are by definition necessary (see e.g. KU, 5: 183-4). Consequently, Kant would be committed to the noumenal necessity of laws of nature. Even conceding that 'noumenal modality' is a meaningful expression and can be applied to laws of nature,<sup>19</sup> this is a strong result that is difficult to justify. Overall, it seems preferable to remain at least agnostic as to whether laws of nature are noumenally necessary.
- (b) If natures are (at least partially) noumenal grounds of the determinations of empirical objects, ultimate explanations in nature would, strictly speaking, go beyond nature, i.e. they would be, to use a Kantian term, "hyperphysical".<sup>20</sup> Granted, on this view, hyperphysical explanations are not in fact available to scientists. But I find it dubious that they can still be a reasonable goal for scientific research.
- (c) Proponents of the noumenal thesis owe us an account of how things in themselves, which are not in space and time, can be natures of phenomena. To be sure, Kant is committed to the general claim that noumena ground phenomena—but this is a different claim from saying that noumena causally ground specific determinations of spatio-temporal things. The latter relation is a grounding relation that holds between noumena and something *within* the phenomenal world. As a result, it seems to require either that noumena are themselves in space and time or some kind of 'miraculous' intervention, i.e. direct efficaciousness of noumena among phenomena. Either option seems to me to be costly.<sup>21</sup>

Fewer scholars have addressed the second question (2), namely how we can represent a nature. Arguably, however, the concept of a nature is best classified as a regulative idea of reason in Kant's taxonomy of concepts. Some reasons in favor of this thesis are as follows. First, the proponent of the regulative thesis has some limited but striking textual evidence. In the first *Critique*, Kant briefly discusses 'particular' or 'empirical' ideas, such as "pure water", "pure earth", "pure air" as well as the idea of "fundamental power" in psychology and physics (e.g. A645-6/B673-4; A649/B677). It is worth noting that chemical elements such as water and air

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be extended to them. While this proposal deserves a separate discussion, let me briefly note here that vindicating the knowability of natures is exegetically problematic since Kant explicitly denies it (see third feature of natures).

<sup>19</sup> For an insightful analysis of noumenal modality and its problems see Marshall and Barker (forthcoming).

<sup>20</sup> A hyperphysical explanation is an explanation "not from nature but rather from a cause that goes beyond nature" (V-Met/Mron, 29: 935).

<sup>21</sup> Watkins (2005, p. 353) develops a similar objection for a different, but analogous problem concerning phenomenal substantiality.

are typical examples of natures for Kant throughout his corpus (see e.g. Br, 11: 36; V-Lo/Dohna, 24: 728), and, as we have seen, ‘power’ is a core element of Kant’s definition of nature. Second, the concept of a nature fulfils the requirements of an idea of reason. Ideas are defined as (i) a priori concepts made up of pure concepts of the understanding (see e.g. A320/B377); (ii) to which no possible experience corresponds (see e.g. A310-11/B367). The concept of a nature is (i) made up of pure concepts of the understanding (arguably, <totality>, <power>, <existence>; see section 2); and (ii) has no correspondent in any possible experience (recall the third feature of natures). If this is correct, the concept of a nature can be—at least provisionally—regarded as an idea of reason to which no experience can correspond (I will offer further support in section 5). This classification also seems capable of giving natures a positive role within the limits of critical philosophy. It can be argued that although we can only presuppose natures without knowing their content, their concepts still play an important role as regulative ideas of reason. The resulting claim is what I call the regulative thesis:

**Regulative thesis:** Although we cannot know natures, their concepts retain a key regulative role as ideas of reason.

Let me conclude this section with a brief note on the relation between the noumenal and the regulative theses. We have seen that the noumenal thesis leads either to the rejection of natures in Kant’s philosophy or to puzzling implications with respect to Kant’s views on natural science. I further suggest that the noumenal thesis, in conjunction with the regulative thesis, jeopardizes the meaningfulness of natures as regulative goals of empirical investigation. Thinking of noumenal grounds as the content of ideas of natures is not promising to account for genuine approximation to natural explanations and laws (e.g. A479/B507; A692/B720). The reason is simply that no finite amount of empirical investigation can be said to get closer to natures as (partially) noumenal objects.<sup>22</sup> In what follows, I wish to propose a different thesis about the content of the concept of a nature, one that better resonates with Kant’s conception of natural science and that allows the potential of the regulative thesis to be fully understood.

#### 4. What is a nature? A phenomenal thesis

In this section, I suggest that the noumenal thesis is not entailed by the application of the concept of a nature to the critical context. Rather, the mature Kant is committed to a *phenomenal thesis* about the natures of empirical objects. To make this point, I need to go through some of the key features of ‘nature’ that I have illustrated in section 2.

Let’s start with the first feature of natures, i.e. real grounding. That natures are real grounds is of little help in deciding whether they are noumenal or phenomenal since real grounds are univocal between the noumenal and phenomenal worlds. A noumenal soul can be the real ground of inner appearances, just as an empirical cause can be the real ground of an empirical effect. There is no doubt, however, that for Kant the natures of empirical objects contain empirically accessible powers. For example, repulsion and attraction—powers that can be experienced and measured—are often used as examples of essential powers of matter (see e.g. V-Met-L2/Pölitz, 28: 553). If this is correct, at least some essential powers are given empirically. Kant is however committed to a broader claim. In several places he generalizes empirical accessibility to all powers—including all ‘basic powers’:

“All basic powers must be given through experience.” (V-Met/Mron, 29: 773)

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<sup>22</sup> For an investigation of this problem see Spagnesi (2023).

“All basic powers are given to us through experience, and none can be comprehended through reason.” (V-Met-L1/Pölit, 28: 279)

“For this acquaintance with actual forces is required, which can only be given empirically, e.g., acquaintance with moving forces, or, what comes to the same thing, with certain successive appearances (as motions) which indicate such forces.” (A207/B253)

Why must basic powers be given empirically? This is far from being clear since the notion of ‘power’ can also be applied to the noumenal as well as the phenomenal realm. To shed light on Kant’s justification of this claim, I propose to take a closer look at the role that ‘causal powers’ play in natural science, i.e. what and how we *explain* with them. In what follows, I offer a (toy) model of causal explanation in the critical Kant (based on Frierson, 2005; Watkins, 2005; Kreines, 2009; and Engelhard, 2018) that provides—I submit—an answer to our question. The model is simplified in many respects but should convey the key points for the present discussion.

Two comments are in order here. First, recall that the focus of this paper is on the natures of empirical objects. What natures are meant to explain, their *explananda*, are states of things (*Zustände der Dinge*) that are given to us empirically. For example, we experience that a sample of salt dissolves in water at  $t_1$  and we try to explain this state (or event or, to use a term we have already encountered, ‘determination’). Second, it is important to remark that we are targeting Kant’s critical doctrines here. In doing so, I am assuming that Kant has succeeded in proving the principle of the causality of appearances (the Second Analogy of Experience). According to a (minimal) reading of this principle, for any empirical state (say, that a sample of salt dissolves in a sample of water at  $t_1$ ), there must be (i) an antecedent state (a sample of salt and a sample of water at  $t_0$ ); and (ii) a necessary connection between the two states.<sup>23</sup>

Importantly, the lawful connection between two events is still not a causal explanation, for it does not specify *why* the antecedent state brings about the subsequent state. This is where the concept of power enters the model.<sup>24</sup> A power is introduced as the ‘relation’ that connects an object (in a given state) to its determinations (belonging to itself or to another object). The introduction of powers is justified since it enables a kind of explanation (an explanation *why*) that is simply not available if we only appeal to preceding states.<sup>25</sup> In our example, we introduce a causal power as the *explanans* of the event ‘salt dissolves in water’ at  $t_1$ : the causal power of water to dissolve salt.<sup>26</sup> For Kant, introducing a power as the *explanans* of events is a specific way of explaining—what Kant calls the “physical” and “dynamical” mode of explanation (e.g. MAN, 4: 532-3; V-Met-L1/Pölit, 28: 210; V-Met/Mron, 29: 935). This mode of explanation, Kant says, was “discovered” by Newton and proved to be more congenial to the empirical sciences than the “mechanical” mode and, of course, non-physical types of explanation (such as “hyperphysical” explanations; see V-Met/Mron, 29: 935).<sup>27</sup>

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<sup>23</sup> This interpretation follows the text closely. It does not take a stance on whether a weak reading (some cause-some effect) or a strong reading (same cause-same effect) of the principle of causality is preferable. It also glosses over the role of the so-called cosmological principles of the world (*non datur casus, non datur fatum, non datur saltus, non datur hiatus*).

<sup>24</sup> I am indebted to Frierson (2005) and Watkins (2005) for this point.

<sup>25</sup> Thanks to Andrew Cooper for pressing me to clarify this. Let me briefly note here that being able to appeal to reasons why seems to be an integral part of scientific understanding. Already in the *New Elucidation*, Kant connects reasons why to “grounds of becoming” (i.e., on my reading, natures); see PND 1: 392.

<sup>26</sup> According to contemporary physics, this is due to the ability of water molecules to form hydrogen bonds (an attractive force).

<sup>27</sup> To be sure, the appeal to explanatory powers predates Newton. I take Kant to mean that Newton scientifically codified a fundamental mode of explanation.

If this picture of causal explanation in Kant is on the right track, it also provides us with an answer to the question of what a nature is. Recall that, on my reading of Kant, a nature is the complex of causal powers responsible for all the determinations of an object. According to the model that I have briefly sketched, each of the powers that figures as part of a nature must be able to be instantiated in a spatio-temporal state in order to be efficacious. For instance, it is the power possessed by a given sample of water at a given time ( $t_0$ ) that causes the event ‘salt dissolves in water’ at  $t_1$ . I think this is what Kant has in mind when he claims that all basic powers are empirically given to us (at least during the critical period). And since the natures of empirical objects contain only powers that must be so given, it also follows that natures are entirely phenomenal (*contra* the noumenal thesis). I spell out my phenomenal thesis about natures as follows:

**Phenomenal thesis:** The nature of an empirical object is the total set of phenomenal powers that causally ground its determinations.

A serious objection arises here. As we have seen, nature is not just a causal ground, but the “first” and “inner” causal ground of everything belonging to the existence of a thing. These two characterizations (‘firstness’ and ‘intrinsicness’) suggest that natures have a non-empirical character. Even if we infer causal powers responsible for certain effects, one can still be expected to inquire about the ground of such a chain of causes. In other words, it looks as though the demand for an ultimate ground of empirical effects leads us to postulate something outside the series of appearances in space and time. Kant considers the following scenario when discussing the possibility of freedom and of a noumenal character in the Third Antinomy of the first *Critique*.<sup>28</sup> He writes:

But then if the effects are appearances, is it also necessary that the causality of their cause, which (namely, the cause) is also appearance, must be solely empirical? (A544/B572)

The answer is negative. Although effects are empirical and must be connected according to the law of causality, it is still possible to think of a cause “that is not empirical, but rather intelligible, i.e. an original action of a cause in regard to appearances” (*ibid.*). In other words, it is possible to think of a *noumenal* cause of our actions. Assuming that such a possibility generalizes to all natures (something that Kant seems to be sceptical about in the first *Critique*),<sup>29</sup> does it undermine the proposed phenomenal thesis about natures?

I think the answer to this question should also be negative. Even if intelligible natures generalize, their actions must always accord with the “empirical causality” dictated by the Second Analogy (A545/B573), i.e. they must be capable of being instantiated in space and time in order to be efficacious. As a result, (i) the complex of powers composing the nature of an empirical thing would remain unaltered by the assumption of an intelligible (part of) nature; and (ii) an intelligible nature would not interfere with the explanation of phenomena (MAN, 4: 507). Most clearly, Kant says:

This intelligible ground does not touch the empirical questions at all, but may have to do merely with thinking in the pure understanding; and, although the effects of this thinking and acting of the pure understanding are encountered among appearances, these must nonetheless be able to be explained

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<sup>28</sup> What interests me here is only the scenario that Kant describes, not its implications for the debate on free will.

<sup>29</sup> “In the case of lifeless nature and nature having merely animal life, we find no ground for thinking of any faculty which is other than sensibly conditioned” (A546/B574). However, further complications arise if we consider other texts, such as the third *Critique*. I remain neutral on this issue.

perfectly from their causes in appearance, in accord with natural laws, by following its merely empirical character as the supreme ground of explanation. (A545-6/B573-4)<sup>30</sup>

I suggest that the phenomenal thesis has implications that are more congenial to Kant's natural science than those implied by the noumenal thesis. First, if natures are total sets of empirical powers, and laws are grounded in them, then the modality of such laws is not unfathomably noumenal, but "natural"—as Kant claims it is (e.g. A418/B446; A543/B571). Second, the powers that compose natures provide what Kant calls "physical", and more specifically, "dynamical" explanations of phenomena. Finally, as totalities of empirical properties, natures can be instantiated in particular states given to us in experience (according to the Second Analogy). They causally determine objects while being fully compatible with empirical causality, and thus do not require mysterious interactions between noumena and phenomena.<sup>31</sup>

Let me take stock here. I have proposed that the causal grounding of phenomena is orthogonal to the (possible) grounding relation between a noumenal and a phenomenal nature (which I take to be analogous to the relation between an intelligible and an empirical character). This is not in any way to deny the general claim that phenomena are grounded in noumena, nor, more specifically, that phenomenal natures may be grounded in noumenal natures.<sup>32</sup> I think that, for Kant, phenomena are grounded in noumena. And it is possible to think that phenomenal natures may be grounded in noumenal natures that, for example, guarantee their unity and interaction.<sup>33</sup> Rather, the claim I defend here is that phenomenal natures and noumena figure in two distinct relations: (1) the grounding relation between a phenomenal nature and the determinations of an empirical object; (2) and the grounding relation between noumena and phenomena. This distinction is relevant not only to the question of what a nature is, but also to the question of how we should represent it. For it suggests that the reason why we do not fully know phenomenal natures is different from the reason why we cannot know noumena. I will develop this point in the next section.

## 5. The regulative thesis revisited

If the preceding analysis is correct, it also gives us instructions for understanding natures as regulative ideas of reason (the 'regulative thesis'). It is worth noting that the regulative thesis is compatible with both the noumenal and the phenomenal thesis. An idea can be the concept of a noumenal object existing outside the spatiotemporal series (such as the psychological or theological ideas), but also a totality of empirical conditions (such as the cosmological ideas; see Willaschek 2018). *À propos* cosmological ideas, Kant remarks:

The cosmological ideas alone have the peculiarity that they can presuppose their object, and the empirical synthesis required for its concept, as given; and the question that arises from them has to do only with the progression of this synthesis, insofar as it is to contain an absolute totality, which, however, is no longer empirical, since it cannot be given in any experience. (A479/B507; see also A416/B443)

The concept of phenomenal nature similarly concerns an "absolute totality" of conditions, namely a total set of powers. Such conditions, as we saw in the previous section, are empirically

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<sup>30</sup> Kant also says that "physical explanations proceed on their own course hindered ... we need not worry about what sort of ground is thought for these appearances and their connection in the transcendental subject, which is empirically unknown to us" (A545/B573); see also A550/B578.

<sup>31</sup> For a similar emphasis on the phenomenal character of explanation see Hanna (2000, 27; 2006, 236-7).

<sup>32</sup> See also Ameriks (2012, chapter 3) for a "moderate interpretation" of the phenomenal world, according to which appearances are real in a proper sense but do not replace things in themselves.

<sup>33</sup> As Kant seems to suggest in the pre-critical period. See BDG, 2: 93-155; on this point see also Hoffer (2023).

given. What is not empirical is their totality since to know it is to go beyond the limits of experience. In Kant's system, reason postulates such a totality as the "faculty of principles" (e.g. A299/B356) or the faculty that demands the "unconditioned" (e.g. Bxx), i.e. something that is not itself conditioned or grounded by anything else. More specifically, it demands it in its 'real use', i.e. in its application to real grounding relations between objects (of which natures are an example—recall their first feature).<sup>34</sup> Further, for Kant, not all concepts are suitable for the ideas of reason but only those that give rise to an "ascending series" of conditions (A331/B388), i.e. a series from which we move from something conditioned to the totality of its conditions. Causality is an example of such a series (e.g. A409/B436). As a complex of causal powers grounding the empirical determinations of things (second feature of natures), concepts of phenomenal natures are suitable for being thought as ideas of reason.<sup>35</sup>

How does the phenomenal thesis help shed light on the regulative function of ideas of natures? For Kant, ideas are models for the use of the understanding (e.g. A681-2/B709-10). Recall the third feature of natures. Although we cannot know natures, concepts of natures would correspond to the real definition containing all necessary and sufficient internal marks of an object. I propose that ideas of natures guide the understanding as models of real definitions. Kant says:

An idea contains the archetype for the use of the understanding, e.g., the idea of the world whole, which idea must necessarily be, not as constitutive principle for the empirical use of the understanding, but as regulative principle for the sake of the thoroughgoing connection of our empirical use of the understanding. Thus it is to be regarded as a necessary basic concept, either for objectively completing the understanding's actions of subordination or for regarding them as unlimited." (Log, 9: 92-93)

The idea of a nature ( $n_x$ ) is the model of the total set of causal powers that constitute  $x$ 's being a sample of  $n$ . It has the regulative function of guiding the understanding in its empirical use. More specifically, it guides the understanding (i) in the regressive subordination of marks (of powers); and (ii) in the unlimited coordination of marks (of powers). In other words, ideas of natures are regulative 'unifiers' that spur the investigation of the explanatory grounds of phenomena. Such unifiers remain 'empty' in themselves (as ideas) but can be progressively filled in with content obtained through empirical investigation.

At this juncture, one might question the compatibility of the proposed reconstruction with Kant's account of the nature of matter in the *Metaphysical Foundations of Natural Science*.<sup>36</sup> In this work, Kant seems to argue (i) that matter has two basic or fundamental powers, namely repulsion and attraction; and (ii) that these powers are the only basic powers of matter (e.g. MAN, 4: 499-500). But if this is correct, it would seem to follow that the two sources of unknowability I have identified in section 2 do not apply in this (highly significant) case. Not only do we know that we have identified the marks of the basic powers of matter, but we also know that we have identified all the marks of the powers of matter. How is the case of matter to be accommodated within the proposed interpretation? Although a careful investigation of the

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<sup>34</sup> As Willaschek (2018) and Watkins (2019) have argued, for Kant, reason has both a logical and a real use. That is, it can demand the "unconditioned" with respect to concepts or objects. While the logical use of reason is concerned with grounding relations between concepts, the real use of reason concerns real grounding relations between objects.

<sup>35</sup> I tentatively propose to include the concept of phenomenal nature in the class of cosmological ideas. However, I leave careful consideration of taxonomic concerns to another occasion. See Howard (2023) for an insightful analysis of cosmological ideas.

<sup>36</sup> I am thankful to an anonymous referee for encouraging clarity on this point.

nature of matter is not possible here, I wish to briefly suggest some strategies for dealing with it.

A first interpretive option is to argue that the marks of the fundamental powers of matter do not belong to the nature of matter (see e.g. McLear 2018). The fact that Kant refers to repulsion and attraction as essential properties of matter (e.g. V-Met-L2/Pölitiz, 28: 553; MAN, 4: 500, 508) should be read in a deflationary way—as simply highlighting that these marks are part of what we think in the concept of matter, i.e. of its logical essence. But even if we accept this claim, nothing stands in the way of attributing a real essence or nature to matter as well. This seems to be suggested by the following passage from an often-quoted letter from Kant to Reinhold (May 12, 1789):

For example, extension and impenetrability constitute the whole logical essence of the concept of matter, that is, they are all that is necessarily and primitively contained in my, and every man's, concept of matter. But to know the real essence of matter, the primary, inner, sufficient ground of all that necessarily belongs to matter, this far exceeds all human capacities. (Br, 11: 36)

Although we know the complete logical essence of matter (arguably, in virtue of the special relation between matter and the pure intuitions of space and time; see MAN, 4: 472), it does not follow that we also know its nature. And this unknowability, in turn, may be due to the fact that we lack access to the complete list of fundamental powers contained in the nature of matter.

Other interpreters do accept that repulsion and attraction belong to the nature of matter (e.g. Stang 2016; Messina 2017)—the peculiarity of the nature of matter would be exclusively epistemological. In other words, the nature of matter is the only one that is completely accessible to us (arguably, again, because of the privileged relation between matter and the pure intuitions of space and time). Note, however, that it is not necessary to take the nature of matter to be exhausted by the powers that are epistemically accessible to us. It may be the case that there is more to its nature than repulsion and attraction.<sup>37</sup> If so, other basic powers may be contained in the nature of matter, and it may be possible to unify its powers further. These points resonate with Kant's remarks about the usefulness of the idea of fundamental power even in apparently hopeless cases, i.e. where differences of accidents (or of powers) seem to be irreducible (see e.g. V-Met-L1/Pölitiz, 28: 262; V-Met/Mron, 29: 822).

One possible objection to the above strategies is that, while they may reconcile the case of matter with the epistemological framework proposed here, they are not obviously compatible with my phenomenal reading of natures. After all, couldn't the fact that our access to the logical essence or to a part of the real essence of matter is complete indicate precisely that what is left to know about it goes beyond experience?<sup>38</sup> For example, in the above-mentioned letter, Kant seems to speak of the unknowability of natures of empirical objects (matter, water, earth) and of non-empirical objects (space, time) in a similar way (Br, 11: 37). However, this line of interpretation is not forced upon us. While natures of any object are unknowable, there may be specific differences in the reasons why natures are unknowable. In the case of matter, we may lack the complete experience that would allow us to know the nature of matter. As suggested above, this is not to deny the possibility of a noumenal (aspect of the) nature of matter, but only its relevance to the explanatory relation at stake here (that between the nature of matter and its empirical determinations).

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<sup>37</sup> On this point see also Stang 2016, 252-4.

<sup>38</sup> I am grateful to an anonymous referee for pressing me on this point.

After these clarifications, let me elucidate a final aspect of my account of how regulative ideas of nature allow us to investigate the marks contained in the natures of empirical things. Since the latter marks ideally map onto powers of things, the idea of a nature guides the understanding towards the “first” and “inner” ground of the existence of a thing. We are finally able to justify these important characterizations of natures as real grounds. The complete set of powers composing the nature of a thing is ‘first’ because it contains all the basic powers that are causally responsible for its determinations. If a basic power responsible for the determinations of a thing were not contained in its nature, the set would not be complete and therefore not in fact its nature. Second, the powers composing each set single out relations between an object and its determinations or determinations in another object. I suggest that both relations are, in a relevant sense, ‘inner’.<sup>39</sup> In the former case, because it clearly concerns an internal relation between an object and its own accidents; in the latter, because the attribution of a causal power to a thing does not depend on whether the other thing is given. For example, we can attribute to water the power of dissolving salt even if no sample of salt is given to us.

Importantly, this picture fares better than previous approaches in vindicating the potential of the regulative thesis. For, recall, the noumenal thesis postulates endpoints of investigation that do not belong to empirical research (they are, strictly speaking, “hyperphysical”).<sup>40</sup> They prescribe to the understanding tasks that the understanding cannot even approximate. But if ‘ought implies can’, prescriptions of this sort are not in fact prescriptions. A core tenet of Kant’s notion of natural laws and physical explanation is that we can approximate them, i.e. progressively improve them. On my reconstruction, ideas of natures can give rise to valid prescriptions because there is a genuine sense of approximation to natures as total sets of phenomenal powers (see also A692/B720). Our synthesis of predicates can be indefinitely enriched and revised as to improve the robustness and comprehensiveness of the sought nature.

From this, it does not follow that our investigation can be completed. The absolute totality is no longer empirical since it cannot be given to us in any situated experience. As Kant puts it, some ideas (cosmological ideas) are transcendent not because they overstep appearances “in kind”, but because “they carry the synthesis to a degree that transcends all possible experience” (A420/B447). “Transcendence in degree” aptly describes the type of ‘unknowability’ that characterizes ideas of natures. We cannot completely know natures because we cannot come to cognize the total set of subordinated and coordinated marks that map onto their worldly powers. At the same time, ideas provide us with models that allow us to indefinitely extend the investigation of natures in space and time. As a result, natures are the object of open-ended and progressive, albeit fallible cognition. As Kant puts it: “we become acquainted with the powers of things bit by bit in experience” (V-Met-L2/Pölit, 28: 553). The result of my reconstruction is therefore a substantial revision of the regulative thesis about natures as conceived by proponents of the noumenal thesis. In short:

**Regulative Thesis Revisited:** Although we cannot know natures, their concepts retain a key regulative role as ideas. Ideas of natures (as total sets of powers) can be approximated and therefore have a legitimate prescriptive role for empirical investigation.

## 6. Kant and contemporary essentialism

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<sup>39</sup> This is not to say that empirical objects have ‘absolutely intrinsic’ properties since they must be given in space (which is relational). However, it is possible to identify a subset of properties that are ‘comparatively internal’ properties (e.g. A277/B333).

<sup>40</sup> Kant clearly denies that ideas can be used as explanations at A772/B800.

In the previous sections, I have argued that Kant is committed to two theses about natures, namely the phenomenal thesis and the regulative thesis (revisited). I now want to explore whether the conjunction of these two theses gives rise to a ‘genuine’ form of essentialism (from a contemporary perspective), and if so, whether it can inform contemporary essentialist accounts.

In my reconstruction, Kant assigns a specific role to natures (or essences) in his system. His use of these terms, however, may be idiosyncratic and not classifiable as ‘essentialist’ by contemporary standards. To understand whether Kant’s essentialism is genuine from a contemporary perspective, we need to identify, as it were, some defining mark or feature of essentialism. This is not a trivial task since essentialism comes in many different forms today. But while one can find competing accounts of essences, it is true that the major contemporary essentialisms are accounts of modality and, more specifically, accounts of modality that are primarily *de re*.<sup>41</sup> What is *de re* modality? And why does it matter to essentialists? Typically, *de re* modality concerns the attribution of modality to objects. Another way of putting it is that it tracks modes in which entities have properties (Roca-Royes, 2023, p. 42). It contrasts with *de dicto* modality—the attribution of modality to general propositions or sentences, or the modality that tracks general relations among properties (ibid.). *De re* modality matters to essentialists because they typically associate essences with modes in which objects have properties. Kripke even equates essentialism with “belief in modality *de re*” (1980, 39). A minimal criterion for the attribution of essentialism to Kant is therefore that his story about natures is also primarily a story about *de re* modality.

One possible way to reject essentialism in Kant is precisely to deny that Kant has the resources to account for *de re* modality in his natural philosophy. Interpreters such as Kroon and Nola (1987, p. 448), for example, claim that Kant is not interested in the distinction between ‘objects’ and ‘propositions’, but he is rather exclusively concerned with the question of how ‘thought’ is related to (and distinct from) ‘experience’. I think this criticism wrongly assumes that these distinctions are mutually exclusive and fails to acknowledge that both are present in Kant. As we have seen in section 2, Kant distinguishes between logical grounds, i.e. grounds of concepts (which I take to be general representations that ground propositions or sentences without reference to particular entities), and real grounds, i.e. grounds of things. For Kant, natures or essences are real grounds of the modality of things, i.e. grounds of *de re* modality. What is more, natures can be applied to both noumena (things we merely think) and phenomena (things we experience, or empirical objects). I have argued that natures of empirical objects are phenomenal. As a result, natures of empirical objects are grounds of *de re* modality within the phenomenal world. They track how phenomena, i.e. empirical objects, possess causal powers.

If this is correct, we can grant that Kant’s essentialism satisfies a minimal criterion of essentialism. We can further ask: to what kind of ‘*de re* essentialism’ does Kant’s essentialism come closest? Insofar as Kant grounds the modal properties of empirical objects in natures, Kant seems closest to broadly (neo-)Aristotelian accounts of modality, according to which modalities have their source in the natures of things.<sup>42</sup> On the other hand, the details of Kant’s account—especially his emphasis on causal powers composing each essence—closely resemble ‘dispositionalism’, i.e. the view that modalities are grounded in the powers or dispositions of things. These two accounts share some features (they are both primarily *de re*, realist, and mind-

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<sup>41</sup> As Roca-Royes (2023, p. 48) notes with reference to Wang’s terminology. Wang (2020, p. 189) distinguishes *de re first* and *de dicto first* accounts of modality: “the former ground all modal facts in *de re* modality, the latter in *de dicto* modality.” Of course, this does not mean that they are exclusively *de re*.

<sup>42</sup> This view was initiated by Fine (1994).

independentist accounts of modality),<sup>43</sup> but it would be a mistake to underestimate their differences. For example, essentialists typically focus not on the powers of things, but on properties more generally understood; and dispositionalists reject the assumption that there are essences beyond the fundamental powers they postulate. Since Kant's model includes both powers and essences resulting from their composition, it cannot be reduced to either of these accounts. It can be regarded as a syncretic account of modality. As it has been rightly noted by Messina (2017), Kant's account is particularly close to Ellis's scientific essentialism, which grounds modality in the essential properties of things, while emphasizing that the essential properties that are investigated in science are fundamentally dispositional, i.e. causal powers.<sup>44</sup>

Whereas these similarities allow us to elucidate some key features of Kant's essentialism, I also urge that Kant's essentialism not be identified with contemporary accounts, such as Ellis's. Kant operates with a distinction between phenomena and noumena (resulting from his commitment to transcendental idealism) that is simply not shared by contemporary interpreters and that has far-ranging implications for the view he advocates. I cannot offer here an exhaustive analysis of these implications and how they compare with contemporary essentialism, but a few remarks are in order.

For Kant, phenomena are not 'things' that exist prior to and independently of the subject that experiences them. Phenomena (or appearances), Kant says, are "always encountered in its relation to the subject" (B70). They ontologically and epistemologically depend on the subject that experiences them—as is often noted, Kant has a *mind-dependent* account of phenomena.<sup>45</sup> Even leaving here unanswered the fundamental question of how exactly empirical objects depend on human minds, it already follows that no 'absolute view' or 'view from nowhere' of phenomena is available to Kant. This is an important point of departure from standard contemporary accounts of essentialism, which characterize essences and modality in mind-independentist terms.<sup>46</sup>

At this juncture, one might think that mind-dependence is at odds with genuine essentialism. But while it is true that essentialists typically share a commitment to mind-independent essences (from which the mind-independence of modality follows), there is theoretical space to allow essences (and hence their resulting modality) to be mind-dependent.<sup>47</sup> Indeed, proposals for mind-dependentist essentialisms can be found in the contemporary literature, especially in response to psychological and social phenomena.<sup>48</sup> Note also that the mind-dependence of phenomena does not necessarily entail an anti-realist or idealist position. While there is considerable disagreement about how to interpret the details of Kant's transcendental idealism,

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<sup>43</sup> At least in their standard formulations; see Vetter (2011) and Roca-Royes (2023) for a comparison between essentialism and dispositionalism.

<sup>44</sup> See Ellis (2001). For Ellis, there can be both dispositional and non-dispositional essential properties (p. 127). However, dispositional properties can only supervene on other properties if the subvenient class contains at least some fundamental dispositional properties (p. 128). Fundamental dispositional properties are taken to be the truth-makers of natural laws (ibid.).

<sup>45</sup> For a recent discussion of mind-dependence in Kant see Kohl (2023).

<sup>46</sup> The noumenal thesis about natures might seem to reduce the distance between Kant and contemporary accounts. After all, a noumenalist can appeal to things in themselves as grounds of modality. However, apart from the exegetical difficulties that I have raised in previous sections, I doubt that noumenalists can provide the kind of mind-independentist modality desired by contemporary essentialists without equating things in themselves with phenomena (thereby violating transcendental idealism). This is the error that Kant famously attributes to Leibniz: for him appearance was the representation *of the thing in itself ... Leibniz intellectualized the appearances*" (A270-1/B326-7).

<sup>47</sup> As recognized by Roca-Royes (2023, p. 48).

<sup>48</sup> For an example see Khalidi (2016).

Kant remarks in several places that his position amounts to a form of realism about phenomena—what he calls empirical realism (see e.g. A370). As is clear from key passages of the *Critique*, Kant thinks that there is no complete derivation of empirical natures and laws from the forms of experience. While it is true that all phenomena must conform to the forms of experience, i.e. the intuitions of space and time and the categories, it is not the case that we can reduce specific laws such as that of the solubility of salt in water to these forms: “experience must be added to come to know empirical laws at all” (B165; see also KU, 5: 183).

What I think follows from the mind-dependence of phenomena is that Kant’s account of essentialism is a modest one. It is modest, first, because it is limited to the world of phenomena. It is an account of natural modality—the modality of the phenomenal world (so it does not generalize to the modality of all things as they are in themselves).<sup>49</sup> And it is modest because it is not metaphysically but scientifically oriented, i.e. geared to empirical research. I interpret this last point as follows. Since Kant in this context does not appeal to absolute metaphysical identities (the identity of things in themselves) over and above our experience of phenomena, the natures of empirical objects are progressively determined in empirical research (and fully determined only at the ideal limit of investigation). Essentialism for Kant establishes only the general claim that the nature of *x* amounts to the total set of phenomenal powers possessed by *x*. And that for some *y* to be a sample of the same nature as *x* consists in *y*’s possessing the same set of phenomenal powers possessed by *x*. It does not establish the content of any specific essence. Nor does it establish that such content is shared by different samples. We must rely on the results of empirical investigation for the progressive determination of natures.

The close dependence of natures on empirical investigation has an important epistemological implication. For Kant, the investigation of essences is open-ended and fallible. It is worth comparing this result with contemporary accounts of the epistemology of essences. There is an ongoing debate as to whether we have a priori or a posteriori access to essences.<sup>50</sup> There are challenges to both approaches. A priori access to essences seems to provide us with mysterious access to the joints at which nature is carved. The image is that of a cognizer who is endowed with a priori insight into at least part of the essences of familiar objects, such as cats and trees, as well as fundamental particles or chemical elements (see e.g. Lowe, 2008). A posteriori knowledge of essences—based on the influential Kripkean idea that we can discover empirical necessities via empirical investigation—has been criticized from many quarters in recent decades. Difficulties include the assumptions that such an approach presupposes (e.g. rigid designation) and whether a posteriori necessity can be meaningfully extended to natural kinds.<sup>51</sup> More generally, a fully mind-independent account of essences and modality seems to raise the very question of how we can cognitively access essences from a human point of view. As Roca-Royes aptly puts it: “it would be a plain mystery if we were able to know *at all* metaphysical modality, construed mind-independently” (2023, p. 55).

In my reading, Kant has a mixed approach to the epistemology of natures, combining a priori and a posteriori elements. As we have seen, specific natures cannot be fully derived from a priori sources and therefore a priori knowledge of natures is excluded. Nor can natures be fully

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<sup>49</sup> Many contemporary essentialists define metaphysical modality in absolute terms, that is, as unrestricted modality that holds in virtue of the natures of all things. Kant’s natural modality is not absolute modality. For a critique of absolute modality see Clarke-Doane (2021).

<sup>50</sup> For an excellent overview see Tahko (2018).

<sup>51</sup> See, for example, Salmon (1981), Lowe (2007), and Beebe and Sabbarton-Leary (2010). For a defense see Bird (2007). For a discussion of some differences between Kripke and Kant on designation see Hanna (1998; 2000; 2006, chapters 3 and 4).

known empirically. No matter how far we progress in our empirical investigation, we are never in a position to determine a nature once and for all. Here is where the regulative thesis enters Kant's essentialism. Although we cannot know natures, we can think of them as ideas. Ideas of natures are a priori concepts of sets of powers. As ideas, these sets remain 'empty'. However, they can be progressively filled in with a posteriori content. For example, we discover that the nature of water contains salt solubility—a power that we later learned to explain in terms of hydrogen bonding. This procedure is not free from errors. We may err in identifying the powers contained in natures as well as in the very parsing of natures. Indeed, we may discover that a postulated 'nature' does not correspond to any set of powers, as in the classic case of phlogiston. Lastly, it is an open-ended procedure since any set of powers can be indefinitely enriched based on new empirical findings.

At this point, one might raise the following challenge to Kant's essentialism. As we have seen, Kant's essentialism is metaphysically modest and epistemologically fallibilist. One might get the impression that all the 'heavy lifting' of Kant's theory (according to my reconstruction) is done by empirical research. It is up to empirical research to determine which powers are given in nature, whether they form clusters, how they are instantiated, and so on. But if that's the case, why shouldn't one be eliminativist about essences? Do essences play any useful role in science (on this view)? A first response to the challenge is to emphasize the unifying function of essences for Kant (i.e. that powers come in sets belonging to things). Thinking in terms of essences allows one to explore explanations of phenomena by asking questions that are not clearly available to the essence-eliminativist. For example, a (Kantian) essentialist can ask questions not only about sparse fundamental powers in nature, but also about which objects essentially possess which powers. For example, metals can be negatively charged, i.e. they can possess the power of 'negative charge'. But one would not include 'negative charge' in the essence of metals. More plausibly, one would include this power in the essence of electrons—thereby appealing not just to a fundamental power but to the set to which that power belongs.

But this answer, as it is spelled out above, is not entirely satisfactory. An eliminativist about essence might insist that these questions are 'downstream' compared to the study of fundamental powers (e.g. Bird, 2007, 208-9), and that unifying practices might even be detrimental to scientific research (e.g. Cartwright, 1999). This is where the regulative thesis (in its revisited form) comes into its full force. For ideas of natures are not only 'unifiers'—they are regulative models that are prescriptive for empirical investigation. They stimulate the investigation of phenomena by giving direction to scientific research. That is, they allow for open-ended and fallible inquiry into the explanations of phenomena.

We have seen above that the proposed version of essentialism vindicates a genuine sense of approximation to natural explanations and laws that was unavailable to noumenalists. Natures qua totalities of phenomenal powers can be (defeasibly) approximated in scientific investigation. As such, they can play an indispensable regulative role in what Kant calls the "most important task" of natural science, i.e. that of "explaining a potentially infinite specific variety of matters" (MAN, 4: 532).<sup>52</sup> Contemporary essentialism is left with a problem that is somewhat similar to that of the noumenalist—explaining how something absolutely independent of our minds (metaphysical essences and modality) can be the object of finite human cognition. A Kantian account of essentialism, if properly updated, can suggest a new approach to this issue. In short, an updated Kantian essentialism conceives of essences not as absolute metaphysical identities over and above empirical research, but as totalities of powers

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<sup>52</sup> Evaluating the necessity (rather than utility) of essences would require further elaboration.

that can be progressively and defeasibly cognized. The function of essences is thus not to provide epistemic access to absolute truths, but rather to regulate the explanation of phenomena in empirical investigation. In other words, Kantian essentialism conceives of essences, first and foremost, as regulative models. These indications are only but a rough sketch and the details of such an approach remain largely to be seen, but Kant may still be, unexpected by most, a valuable resource in the contemporary debate on essentialism.

## 7. Conclusion

Let me conclude with a brief remark on the prospects for Kantian essentialism. After years in which the debate has been dominated by Humean approaches to modality, philosophy has witnessed a resurgence of interest in essentialism. Some of the most influential contemporary accounts of essentialism have adopted a (neo-)Aristotelian approach that is characterized by strong metaphysical and epistemological commitments. These commitments have been met with considerable skepticism from many quarters—essences as well as our epistemic access to them remain in many ways highly obscure.

Kant's essentialism can provide a springboard for a new approach to essences. Of course, Kant's theses are deeply rooted in doctrines and premises that are not particularly popular today. Any attempt to elaborate a Kant-inspired variety of essentialism should take very seriously the problem of evaluating such doctrines and premises (and presumably detaching them from the core essentialist theses)—something that I could not do in a largely exegetical paper such as this. I hope, however, to have outlined some major directions of inquiry. First, Kantian essentialism is an account of *de re* modality that conceives of essences as total sets of powers. It is a modest account of essentialism in that it does not give rise to absolute metaphysical claims but is rather deeply rooted in empirical investigation. Second, this kind of essentialism advocates strong epistemic fallibilism that requires neither mysterious a priori access to essences nor problematic claims about a posteriori necessities. Finally, it ascribes a clear function to natures (they are prescriptive for empirical research)—something that mind-independent views generally fail to account for. I think it is an approach worth exploring (in all or some of its insights).

## Acknowledgements

Earlier versions of this paper have been presented in Tel Aviv, Trier, and Oxford. I am grateful to the audiences, especially to Sabrina Bauer, Andrew Chignell, Pirachula Chulanon, Ido Geiger, Noam Hoffer, Stephen Howard, James Kreines, Jessica Leech, Apostolos Malakos, Lorenzo Sala, Nick Stang, and Reed Winegar for stimulating questions. Special thanks to Andrew Cooper, Kristina Engelhard, Mathis Koschel, and Katharina Kraus for insightful comments and helpful discussions on various aspects of this paper. Finally, I would like to thank Karl Ameriks for reading an advanced draft of this paper and providing illuminating feedback. All errors are my own.

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