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## Analytic Essentialist Approaches to the Epistemology of Modality

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### 1 Introduction

*Metaphysical modality* is the modality concerned with what is possible, contingent, and necessary for an entity or a state of affairs from the perspective of *ontology*, as opposed to the perspective of *logic* or *physics*.<sup>1</sup> *Objectivism* about metaphysical modality is the view that the truth-conditions for statements of metaphysical modality are mind-independent. Within objectivism about modality, let *fatalism* about metaphysical modality be the view that the course of things could not have been other than they are; and *anti-fatalism* be the view that the course of things could have been other than how they are. While fatalism strikes most of us as counterintuitive because it makes contingency an illusion, only anti-fatalism faces the *modal sorting question*: given that some states of affairs are metaphysically necessary and others are contingent, *how do we know which modal property a state of affairs has?* The modal sorting question constitutes one way to state the central question in the epistemology of modality.

In the past decade there has been focused attention on two accounts of how to answer the modal sorting question. The two accounts share the common idea that our knowledge of metaphysical necessity and possibility is grounded in a *mental operation* that takes representations of states of affairs as input and delivers as output a modal judgment—a judgment as to whether something is possible, necessary, contingent, or impossible. The two accounts differ both in the mental operation that they take to be the source of our knowledge and the overall narrative they provide for metaphysical necessity.

On the one hand, David Chalmers (2002) defends a mental-operation account grounded in conceivability. On his account *primary positive ideal conceivability* entails *primary possibility*. The core idea is that the mental operation of *conceiving*

<sup>1</sup> This chapter is dedicated to Bob Hale. I would like to thank Bob for his generosity, friendship, and guidance in the epistemology of modality. My research has greatly been influenced by and benefitted from discussions with Bob. I would like to thank Ivette Fred-Rivera and Jessica Leech for the invitation to contribute to this volume and also for their numerous helpful comments and editing. Special thanks go to Michael Wallner, Antonella Mallozzi, Sanna Mattila, Boris Kment, Bob Fischer, and Manjula Rajan.

when appropriately qualified allows for an entailment link between conceivability and possibility. Chalmers argues that this link avoids the classical threat posed by the existence of *a posteriori* necessities by distinguishing between two senses of conceivability and possibility through the resources of epistemic two-dimensional semantics.

However, one might argue that the price of adopting the account is that *metaphysical* modality must be closely tied to *logical* modality. In order to establish an *a priori* entailment between conceivability and possibility we must maintain that the kind of possibility that one has *a priori* access to is a kind of logical modality that includes conceptual truths, but—as the worry would go—falls short of being a sound basis for establishing genuine metaphysical truths.

On the other hand, Timothy Williamson (2007) defends a mental-operation account grounded in counterfactual reasoning in imagination. On his account we are in a position to assert that it is possible that *p* when it is *not* the case that when we assume that *p* is true in our imagination a *contradiction* reveals itself under a robust enough search for one. And we are in a position to assert that it is necessary that *p* when from the *assumption* that not-*p* a contradiction *does* reveal itself in our imagination under a robust enough search for one. On Williamson's view we gain warrant for asserting modal claims when our counterfactual reasoning under a supposition leads us to either accept or deny that a contradiction has been discovered. In general, his strategy rests on the claim that since modal operators can be defined in terms of counterfactual conditionals, the epistemology of modality is a special case of the epistemology of counterfactuals. And it is important to note that for Williamson the imagination is not the whole story for how we arrive at counterfactual knowledge, but it is a central and important component of how we do.

However, one might argue that the price of adopting the account is that *metaphysical* modality must be closely tied to *physical* modality. In order to establish the reliability of counterfactual reasoning one must appeal to the evolutionary advantage of reliable counterfactual reasoning. But reliable counterfactual reasoning itself is explained by reasoning about physical entities and the relations between them. How exactly that extends into the case of reasoning about metaphysical modality, which goes beyond physical modality, is an open question.

These critiques are controversial. One approach to defending the theories is simply to resist the critiques by challenging the grounds upon which they are offered. Another approach is to simply accept the critiques as offering a pricing option. Accept the theory and concede that metaphysical modality is either logical or physical modality, and take all that the theory has to offer. That is, either inflate metaphysical modality to logical modality and take conceivability-theory or deflate metaphysical modality to physical modality and take counterfactual-theory.

For some the pricing option offered by each account is tempting. On the one hand, a proponent of conceptual analysis may find that Chalmers' theory is a good solution to issues in the epistemology of metaphysical modality because it offers a plausible methodology and story for the project of conceptual analysis. On the other hand, a philosopher worried about whether philosophical methodology is in some *objectionable* sense different from scientific practice may find comfort in Williamson's theory, since it aims to account for philosophical methodology in a way that is scientifically unobjectionable.

For others, however, the pricing option is not attractive. Since 2012, both E. J. Lowe (2012) and Bob Hale (2013) have independently sought to provide an account of the epistemology of metaphysical modality that treats knowledge of metaphysical modality as being grounded in essence. Roughly speaking, an essence of an entity is something that tells us either what kind of thing the entity is or what it is to be that entity. For example, on the one hand, we can engage the question concerning particulars: what is the essence of the particular person Manjula Rajan? What is it for anything to be her? What is it to be her as opposed to Sharmila Rajan? On the other hand, we can engage the question concerning kinds: what is the essence in general of tables? What is it for something to be a table as opposed to a chair?<sup>2</sup> Hale and Lowe are both motivated to take essence seriously in part by the work of Kit Fine (1994), who argues against modal accounts of essence, which treat essence as being reductively definable in terms of quantification over possible worlds. However, Hale and Lowe disagree on what essences are. In general, *essentialist-k* theories, as I call them, take metaphysical modality to be the modality concerned with the essences of entities and to be distinct from logical and physical modality. Essentialist-k theories aim to offer an account of how we can come to *know*, hence the “k,” truths of metaphysical modality by deduction from knowledge of essence. The common core of *essentialist-k* theories is:

- Metaphysics: Essence explains metaphysical modality. For example, the essence *E* of *O* along with other essences metaphysically explains what is metaphysically necessary and possible for *O*.
- Epistemology: Knowledge of essence guides knowledge of metaphysical modality. For example, knowledge of the essence *E* of *O* along with knowledge of other essences and relations guides the generation of knowledge of what is metaphysically necessary and possible for *O*.

I am sympathetic to the idea that essentialist-k theories are an improvement over mental-operation accounts in the epistemology of *metaphysical* modality.<sup>3</sup> My sympathies are due to the fact that mental-operation accounts appear to suffer from a specific kind of problem. The basic issue for both conceivability-based and counterfactual-based accounts can be seen through considering two questions and an internalist perspective on justification and knowledge. The two questions are the following: when should one be confident that, say, *transparent iron is possible*? And: when should we be confident that we have a firm basis for making a modal judgment? The internalist perspective on justification with which I am working concerns the idea of when a subject should be confident in judging something, given what they

<sup>2</sup> It is important to note from a technical point of view that the two notions of essences “what it is to be *x*” and “what kind of thing *x* is” are not equivalent. For the purposes of an initial rendering of essence I offered both glosses. My own preference is for the *kind* version since on my view we get at what it is to be *x* by answering questions about what kind of thing *x* is in terms of a hierarchy of properties.

<sup>3</sup> There are two notions of “mental operation” that one can use. On the *broad* reading, any subjective mental state that has epistemic standing is a state in which there are mental operations. On the *narrow* reading, a theory that explicitly appeals to a mental operation, such as conceiving or imagining, is a mental-operation account, in so far as it is providing an epistemology by picking out a distinctive mental act involving operations. I would like to thank Michael Wallner for pushing me to clarify this notion.

already know. It is internalist because the issues of confidence and judgment are tied to reasons that the subject can deploy in offering an account of why they made the specific judgment. One way to see the problem I am presenting is by considering the following line of reasoning.

On the conceivability approach we should be confident that *transparent iron is possible* only if in constructing a scenario *S* that verifies that *transparent iron* is present we are confident that we have not violated any essential properties of *iron*. A scenario that violates the essential properties of *iron* is a scenario without *transparent iron*. So, we need strong justified beliefs about the essential properties of *iron* to have strong justified beliefs about whether *transparent iron* has been conceived.

On the counterfactual approach we should be confident that *transparent iron is possible* only if in searching for a contradiction from the assumption that *iron is transparent* we have preserved the essential facts about what kind of thing *iron* is. The failure to find a contradiction from the assumption that *iron is transparent* cannot validate the possibility of *transparent iron* unless we have preserved the essential properties of *iron* in our search for a contradiction. So, again, we need strong justified beliefs about what the essential properties of *iron* are in order to yield strong justified beliefs about whether *transparent iron is possible* on the basis of counterfactual reasoning.

This presentation of the problem only invites the response that the theories have been misunderstood. In Vaidya and Wallner (2018) we articulate and defend a version of this problem, which we call *the problem of modal epistemic friction*. However, rather than present a defense of the problem, I want to proceed here on a working assumption: *because essentialist-k theory starts with essentialist knowledge and then moves on to derive knowledge of metaphysical modality from it, it cannot presuppose essentialist knowledge in a problematic way.*<sup>4</sup> The working assumption allows one to inquire into the prospects and contours of essentialist-k theory. As a point of departure for my investigation into essentialist-k theories, in Section 2, I offer a generalized account of Kripke's deduction model of *a posteriori* necessities. This will serve as an attempt to recalibrate our thinking on modal knowledge by going back to Kripke's work. In Section 3 I present Lowe's essentialist theory. In Section 4 I present Hale's essentialist theory. In Section 5 I offer a comparative examination of Lowe's account and Hale's account. In Section 6 I discuss a tension between *essentialist-k theories* and mental-operation accounts with a view towards how the epistemology of modality could be further developed on *essentialist-k theory* or, what I call, the *Hale-Branch* of research in the epistemology of modality.

## 2 Kripke's Deduction Theory

Although a lot of attention is given to *Naming and Necessity* as the core text for coming to understand Kripke's account of the metaphysics and epistemology of modality, in my view it is actually his *Identity and Necessity* where one finds an explicit articulation

<sup>4</sup> Note that the working assumption is that since *essentialist-k theory* moves from essence to modality, it cannot presuppose essence in the way that mental-operation accounts might presuppose knowledge of essence at their base. However, the working assumption does not entail that *essentialist-k theory*, in moving from essence to modality, does not accidentally presuppose some modal knowledge.

of how we can arrive at knowledge of *a posteriori* necessities. While *Identity and Necessity* lays out the explicit structure of the epistemic theory, *Naming and Necessity* paints the picture of how the semantics and metaphysics work together.

Kripke's Deduction Model:<sup>5</sup>

1. If P then  $\Box$ P. *A priori*
2. P. *A posteriori*
- $\therefore$
3.  $\Box$ P. *A posteriori*

On Kripke's account, for example, P could be the claim that Hesperus = Phosphorus or that water = H<sub>2</sub>O.<sup>6</sup> Kripke's idea is that we discover *a priori* through philosophical reasoning that (1) is true, but then we engage in empirical investigation in order to determine whether (2) is true. In the case of Hesperus = Phosphorus, the relevant instance of (1) is the metaphysical necessity of identity, the claim that if A = B, then it is metaphysically necessary that A = B. The core idea is that we first acquire an *a priori* proof of the necessity of identity, then we pass on to specific instances of it, such as *if H = P, then necessarily, H = P*, or *if water = H<sub>2</sub>O, then necessarily, water = H<sub>2</sub>O*, and then we pass on to empirical investigation of the antecedents of such conditionals. Now, although the deduction model that Kripke originally presents is a guide for how we can come to know *a posteriori necessities*, it need not be *restricted* to how we can come to know *a posteriori necessities*. That is, it can be modified in two ways, so as to make it more general.

First, it can be modified so as to take into account cases in which (2) would, like (1), be known *a priori*. The main modification for this adjustment occurs by relaxing the restriction on (2) to cases of *a posteriori* knowledge. For example, there is no reason why one cannot come to know that  $2 + 2 = 4$  of metaphysical necessity simply by *a priori* reasoning that confirms that mathematical truths are metaphysically necessary and that  $2 + 2 = 4$ . Thus, the model is completely general in that whether or not instances of (3) are genuinely known *a posteriori* depends in fact on how exactly (1) and (2) can and are known in specific cases. Arguably, there are cases, such as in mathematics, whereby instances of (1) and (2) can be known *a priori*, and as a consequence (3) would be known *a priori*. Thus, from here forward I will drop distinguishing between whether the claim is known *a priori* or *a posteriori* unless it is relevant to the point being made.

Second, it can be further extended so as to provide an account of *metaphysical possibility*.<sup>7</sup> For example, it is metaphysically possible for *x* to be *G* in so far as it is *not*

<sup>5</sup> Hale (2013: chapter 11) refers to Kripke's account as the *simple inferential model*.

<sup>6</sup> It should be noted that I am not endorsing the view that water = H<sub>2</sub>O. I am simply using the classic example that has been discussed at least since *Naming and Necessity*. Arguably, according to some chemists, water is in fact not H<sub>2</sub>O.

<sup>7</sup> It is worth noting that the extension of the account to the case of metaphysical possibility might strike some as an overbearing account of the method for coming to know metaphysical possibilities. While it is correct to note that the extended version depends on a complicated inference pattern, it is possible from the cognitive perspective that agents actually use modal *heuristics* when making judgments of possibility. These *heuristics* might even take the shape of other theories of modal epistemology, such as similarity-based reasoning from the actual world. For example, one could use the *heuristic* that if *a* and *b* are appropriately similar, and *a* is actually

ruled out by any known metaphysical necessities, and all known metaphysical necessities are mutually compatible, so that by checking  $Gx$  against all of them, we are warranted in saying it is possible for  $x$  to be  $G$ . On this model of how knowledge of metaphysical possibility can be acquired we have the following pattern of deduction:

1. S knows / has justification for believing that if  $F_1x \dots F_nx$ , then it is metaphysically necessary that  $F_1x \dots F_nx$ .
2. S knows / has justification for believing that  $F_1x \dots F_nx$ .
- ∴
3. S knows / has justification for believing that it is metaphysically necessary that  $F_1x \dots F_nx$ .
4. S knows / has justification for believing that  $Gx$  is consistent with  $F_1x \dots F_nx$ .
- ∴
5. S knows / has justification for believing that  $Gx$  is metaphysically possible.

Our confidence in asserting instances of (5) would be relative to how confident we are in thinking we have a good account of the relevant necessities. To the degree that we have an incomplete account of the relevant necessities we should be equally reserved about our assertion of metaphysical possibility. I will be discussing this issue more with respect to Hale's distinction between necessity-first versus possibility-first approaches to the epistemology of modality. Finally, there is at least one important way in which Kripke's account can be distinguished from essentialist-k theories. The distinguishing trait derives from the relation between essence and necessity.

For all that has been said so far about Kripke's account, it is perhaps simply necessity that is a basis for coming to know about possibility. One comes to know about necessity simply by reasoning about the principles that govern metaphysical modality, such as the necessity of identity, origins, kind-membership, and inclusion. However, Kripke's account does not specify either (i) that essence is the ground of necessity, or (ii) that knowledge of essence is *the guide* to knowledge of necessity. In fact, it is plausible to hold that Kripke takes no stance on (i), and that his account is consistent with the opposite of (ii).<sup>8,9</sup> That is, his account leaves open whether the pathway to knowledge of essence comes from knowledge of necessity or the pathway to knowledge of necessity comes from knowledge of essence. On the necessity-to-essence direction the following procedure holds.

- a. First, one arrives at a stockpile of necessary truths concerning an entity.
- b. Second, one examines the stockpile of necessary truths concerning the entity attempting to capture essential properties of an entity.
- c. Third, one takes the sum of essential properties of the entity to be the essence of the entity.

$F$ , then it is possible for  $b$  to be  $F$ . And this *heuristic* can provide one kind of justification for believing that it is possible that  $b$  is  $F$  even if the ultimate justification comes from the method described above that connects belief in possibility with the absence of conflicting necessities individually and in combination.

<sup>8</sup> See Hale (2013: 268) for discussion. However, it should be noted that Kripke's position on the issue of essence and modality could be argued in different ways depending on interpretation.

<sup>9</sup> For an interesting account of Kripke on the epistemology of modality it is highly instructive to read the work of Antonella Mallozzi, especially her (2018) "Two Notions of Metaphysical Necessity."

On this account one arrives at knowledge of essence by delimiting an initial pile of necessary truths. At least one motivation for this view comes from the general line of reasoning that runs as follows. (i) Essences are narrower than necessities, (ii) we can identify the force of necessity easier than the force of essence, and thus (iii) it is easier to first delimit necessity in the search for essence. On the basis of this approach it is possible for one to distinguish between two kinds of essentialist theories.<sup>10</sup> Let *symmetric* mean that the metaphysics and epistemology mirror each other in the direction from essence to modality, and *asymmetric* mean that the metaphysics and epistemology do not mirror each other in the direction from essence to modality.

*Symmetric Essentialism:* Essence is the ground of metaphysical modality, and knowledge of essence is always the path to knowledge of metaphysical modality.

*Asymmetric Essentialism:* Essence is the ground of metaphysical modality, but knowledge of essence is not always the path to knowledge of metaphysical modality.

In Sections 3 and 4 I will be presenting Lowe (2012) and Hale (2013). It is important to note, with respect to the distinction above, that both Lowe and Hale take a symmetric approach to essentialism.

### 3 Lowe's Essentialist Theory

In his (2008) and (2012) E. J. Lowe articulates an account of our knowledge of metaphysical modality that does not use intuition, conceptual analysis, conceivability, or counterfactual reasoning. Rather, it employs our knowledge of essence, which is not held to be dependent on conceptual analysis or conceivability, but rather on our ability to *rationally understand things*. Here is a representative passage from Lowe where he paints the picture of his essentialism about metaphysical modality.

Metaphysical modalities are grounded in essence. That is, all truths about what is metaphysically necessary or possible are either straightforwardly essential truths or else obtain in virtue of the essences of things. An essence is what is expressed by a real definition. And it is part of *our* essence as rational, thinking beings that we can at least sometimes understand a real definition—which is just a special kind of proposition—and thereby grasp the essences of at least some things. Hence, we can know at least sometimes that something is metaphysically necessary or possible: *we can have some knowledge of metaphysical modality*. This *itself* is a modal truth, of course, and one that obtains in virtue of our essence as rational, thinking beings. And since we can, it seems clear, grasp our own essence, at least sufficiently well to know the foregoing modal truth about ourselves, *we know* that we can have some knowledge of metaphysical modality. (Lowe 2012: 29)

Lowe's remarks allow for the generation of a deduction model for knowledge of metaphysical modality that can be contrasted with that of Kripke's. Where *O* is an entity of some kind, either an object, property, or state of affairs, the model can be

<sup>10</sup> This distinction is also discussed, although in different terms, by Tahko (2012: 14) and (Hale 2013: 268).

given both for the case of impossibility and possibility. For simplification I offer the impossibility model explicitly.

Lowe's Deduction Model:

1. S knows / has justification for believing that *E* is the essence of *O*.
2. S knows / has justification for believing that if *E* is the essence of *O*, and *E* is inconsistent with *F*, then it is metaphysically impossible for *O* to be *F*.
3. S knows / has justification for believing that *E* is inconsistent with *F*.
- ∴
4. S knows / has justification for believing that it is metaphysically impossible for *O* to be *F*.

Lowe's account has several interesting features. I will begin by listing the relevant set of questions one should consider in evaluating his account:

- i. What is an essence of an entity?
- ii. What does it take to know the essence of an entity?
- iii. Does every entity have a real definition?
- iv. How much of an entity's essence does one have to understand/know in order to be able to make modal judgments about that entity?

With respect to (i) Lowe offers a *non-entity* account of essence. This view has three main components. First, it denies that essences are further entities over and above the given entity of which they are essences.<sup>11</sup> Second, it denies that the essence of an entity is equivalent to the sum of essential properties for the given entity.<sup>12</sup> Third, as a consequence of the second, it allows one to say that *part of the essence of a certain entity O is that it possess a property P* without being committed to the further claim *P is a part of the essence of O*.

With respect to (ii) Lowe argues that knowledge of essence is available through understanding the real definition of an entity. He holds that in general it must be possible for one to understand the real definition of an entity for two reasons. First, thought about an entity requires a minimal grasp of what it is. Second, to think about an entity does not require a full grasp of what the entity is. Rather, it requires an adequate grasp of what the entity is.

With respect to (iii) and (iv) Lowe points out that there are different cases that one has to consider. The three main types of cases are: geometrical kinds, social kinds, and natural kinds. There are five different examples, since within some kinds there are differences with respect to specific examples.

- (Circle) A circle is the locus of a point moving continuously in a plane at a fixed distance from a given point.
- (Statue) From what a bronze statue is and what a lump of bronze is it follows that it is metaphysically necessary that at any time at which the bronze statue exists it coincides with a lump of bronze. And that it is metaphysically

<sup>11</sup> See Lowe (2008: 38–40) and (2012: 23) for discussion.

<sup>12</sup> See Lowe (2012: 23) for discussion.



possible that one and the same bronze statue should coincide with different lumps of bronze at different times.

- (Water) From what water is it follows that it is metaphysically possible that water  $\neq$  H<sub>2</sub>O, since water = H<sub>2</sub>O only of physical necessity, which is distinct from metaphysical necessity.
- (Color) Although we cannot give a verbal definition of what red and green are, we can give an ostensive definition of red and green, such that we can come to know that it is metaphysically necessary that nothing can be red and green all over at the same time.
- (Table) Although there may be no definitive set of necessary and sufficient conditions that provide a real definition of what a table is, we can come to know some general metaphysical necessities and possibilities for particular tables and the kind *table*.

Lowe makes several points with respect to these cases. First, a distinction needs to be drawn between cases in which a *verbal* definition is possible, a *non-verbal definition* is possible, and *no* definition is possible. A verbal definition is possible when one can use a set of phrases to correctly and completely offer a definition. Second, a distinction needs to be drawn between those cases in which a *complete* definition is possible, and those in which an *incomplete* definition is possible. The circle case is a case in which a complete verbal definition is possible. The table case is a case in which a partial verbal definition is possible or *no* definition is possible. The color case is a case in which a partial non-verbal definition is possible. And the water and statue cases are cases in which a partial verbal definition is possible, if not also a complete definition.

These points allow for Lowe's account to accept grades of knowledge of metaphysical modality based on the case in question. On Lowe's account it is theoretically possible that for some entity *O* and property *P*, or range of properties  $P_1 \dots P_n$ , we can:

- a. Completely grasp *O*'s essence through a real definition and thus conclude with confidence that *P* is either metaphysically necessary or possible for *O*.
- b. Incompletely grasp *O*'s essence through a partial definition and thus conclude with respect to some range of properties  $P_1 \dots P_n$  that it is either metaphysically necessary or possible for *O* to have those properties.
- c. Incompletely grasp *O*'s essence through a partial definition and thus conclude with respect to some minimal range of properties  $P_1 \dots P_n$  that it is either metaphysically necessary or possible for *O* to have those properties.
- d. Incompletely grasp *O*'s essence through a partial definition and with respect to some properties conclude with confidence that *O* has them of metaphysical necessity, but with respect to other properties conclude only tentatively that *O* has them possibly.

Ultimately, Lowe's account of our knowledge of metaphysical modality depends on his theory of our knowledge of essence, which for the most part is given by his theory of what essences are, what real definitions are, and what prospects there are for real definitions across different types of entities.

## 4 Hale's Essentialist Theory

Hale begins by describing two distinct approaches that an account of the epistemology of modality can take. *Necessity-First* approaches treat knowledge of necessity as more fundamental. *Possibility-First* approaches treat knowledge of possibility as more fundamental. The contrast is that on the necessity-first approach knowledge of possibility is what is left open once one has acquired knowledge of necessity. We are in a position to know that  $P$  is possible when we are in a position to know of no conflicting necessities. On the possibility-first approach knowledge of necessity is simply the absence of possibility. We know that  $P$  is necessary when we know that there is no possibility that is in conflict with  $P$ . Concerning this distinction there are two important notes that should be made. First, on both the necessity-first and possibility-first approaches the notion of *conflict* is centrally at play. Given that the notion of *conflict* is modal itself— $P$  conflicts with  $Q$  if and only if  $\neg\Diamond(P \& Q)$  for some interpretation of ' $\Diamond$ '—both approaches depend on modal knowledge in the acquisition of modal knowledge.<sup>13</sup> Second, Hale's distinction between necessity-first and possibility-first approaches allows for a categorization of both Kripke's and Lowe's theories. Both are necessity-first approaches; Lowe's explicitly so, Kripke's arguably so.<sup>14</sup> While Hale's view contrasts with both Kripke's and Lowe's view, it does so in different ways. Hale, initially, describes the thrust of his view as follows:

According to the essentialist theory, metaphysical necessities have their source in the natures of things, and metaphysical possibilities are those left open by the natures of things. Although the theory does not, in and of itself, say anything about how we may come to know what is metaphysically necessary or possible, it seems to me that it strongly suggests a particular approach to modal knowledge. For firstly, given that the metaphysical possibilities are just those possibilities which are left open by the natures of things, and so are determined by the metaphysical necessities, one might expect an essentialist explanation of modal knowledge to follow a *necessity-first* approach, treating at least some knowledge of necessity as prior to any knowledge of possibility. And second, given that metaphysical necessity is seen as having its source or ground in facts about the natures of things, one might expect an explanation of how we can have knowledge of the *nature* or *essence* of things to play a fundamental and central part in explaining knowledge of necessity. The approach I shall try to make plausible here has both of these features—that is, it sees the *primary* task as that of explaining how we can get knowledge of *necessities*, and it further takes it that, at least in fundamental cases, our knowledge of necessities is to be explained by explaining how we can have *knowledge of essence*, or the natures of things. The approach is further shaped by an obvious division. For it is both natural and plausible to suppose that, if we have any knowledge of necessity at all, some

<sup>13</sup> I would like to thank an anonymous reviewer for this sharp observation about the relation between the approaches that Hale distinguishes.

<sup>14</sup> See Fischer (2016b) for a critical discussion of Hale's account of the architecture of modal epistemology. Fischer argues that Hale's argument for a necessity-first approach fails. However, the failure of the argument does not lead to the conclusion that possibility-first approaches are the preferred approach. Rather it leaves open the possibility that a hybrid approach may be more successful or that further investigation is required.

of it is *a priori*, and some *a posteriori*. And if the task of explaining knowledge of necessity is fundamentally that of explaining knowledge of essence, our problem can be divided into two parts—to explain when and how *a priori* knowledge of essence is possible, and to explain when and how essence may be known *a posteriori*. (Hale 2013: 253–4)

Like Lowe, Hale takes it that we must begin by looking at essences and essential properties in order to get at knowledge of metaphysical necessity, and subsequently knowledge of metaphysical possibility. In addition, Hale, like Lowe, in contrast to Kripke, offers a symmetric essentialist theory on which knowledge of essence guides knowledge of metaphysical modality, and not the other way around.

Hale's essentialist theory begins by splitting knowledge of essence into two epistemic categories. The *a priori* cases of knowledge of essence occur when the definition of a thing lines up with the definition of the word. The *a posteriori* cases of knowledge of essence occur when the definition of the word may not line up exactly with the definition of the thing in question. Hale offers the contrast between the definition of a circle and the definition of water as an example. The definition of what a circle is does line up with the definition of the word "circle." However, the definition of "water" does not line up with the definition of what water is.

Moreover, *a priori* knowledge of essence is transparent and accessible via meaning alone. By contrast, *a posteriori* knowledge of essence is non-transparent, and is generally not accessible through meaning alone. Hale further notes that in the *a priori* case there are two subcases: (i) we can explicitly define the relevant words, and (ii) we cannot explicitly define the relevant words, but by relying on our grasp of meaning we can arrive at *a priori* knowledge of essence. As an example of the first case he offers the case of analytic truths, such as "A cob is a male swan." In this case we can use restriction on the term "swan" by the term "male" to produce the analytic truth *a cob is a male swan*. In the latter case Hale discusses the case of the natural numbers where we have to rely on our grasp of the meaning of terms, such as "just as many as" in order to provide the essence of the natural numbers through Hume's principle, which states that the natural number of *Fs* is the same natural number of *Gs* if and only if there is a one-to-one correspondence between *Fs* and *Gs*.

An important component of Hale's approach is that he holds that the correct way for coming to know that something is metaphysically necessary is by thinking about what follows from its essence. But how exactly does Hale think we come to know the essence of an entity aside from the use of real definitions?

My purpose here is not to provide a comprehensive theory of knowledge of essence, but to illustrate and make plausible the general strategy a proponent of the essentialist theory of metaphysical necessity may adopt in answering the epistemological challenge introduced at the start of this chapter. In a nutshell, that strategy consists in formulating and arguing for general principles of essence—principles asserting, schematically, that such-and-such a property is essential to its instances—from which we may infer specific Kripke conditionals which, in their turn, may serve as the major premises for Kripke-style inferences to specific essentialist conclusions. (Hale 2013: 269)

The passage sets up the following adjusted model for Hale, based on Kripke's deduction model, where (1) involves a principle of essence, and (2) a Kripke-conditional.

Hale's Deduction Model:

1. S knows / has justification for believing that if  $x$  has  $F$ , then  $F$  is essential to  $x$ .
2. S knows / has justification for believing that if  $F$  is essential to  $x$ , then it is metaphysically necessary that  $x$  is  $F$ .
3. S knows / has justification for believing that  $Fx$ .
- ∴
4. S knows / has justification for believing that  $F$  is essential to  $x$ .
- ∴
5. S knows / has justification for believing that it is metaphysically necessary that  $Fx$ .

On the route favored by Hale, one takes a *direct* approach to knowledge of essential properties, by arguing directly for *essentialist* principles. Hale clarifies the epistemological situation as follows:

The epistemological situation is thus that, whenever the essentialist can make a convincing case for a general principle of essence, the strategy is *eo ipso* available as the basis of an answer to the epistemological challenge—an explanation of how we can know particular facts about essence of the type covered by the general principle. (Hale 2013: 269)

He argues directly for the following set of essentialist principles:

**Kind Membership:** Any object is essentially an object of a certain general kind.

**Kind Inclusion:** If being  $G$  is part of what it is to be  $F$ , it is so essentially.

While Hale's arguments for the two principles are quite convincing, the ultimate soundness of them is not of primary interest here. Rather, the core concern is with the strategy Hale develops for knowledge of metaphysical possibility and necessity via knowledge of essentialist principles. Putting the pieces together there are two basic cases.

In a standard *a priori* case, such as that of the circle, we can arrive at what is metaphysically necessary and possible for circles via the fact that we have access to their real definition, which completely captures what it is to be a circle. As a consequence, we can deduce, for a property  $P$ , whether it is metaphysically possible, necessary, contingent, or impossible that circles are  $P$  simply through checking for compatibility with the real definition of circles.<sup>15</sup>

In a standard *a posteriori* case our judgments about what is metaphysically necessary will be far more confident than our judgments about metaphysical possibility. The reason why is that on Hale's account we are to take a necessity-first approach according to which metaphysical possibility is simply what is left open by our basic knowledge of what is metaphysically necessary. In the case of material kinds, such as biological kinds, it is not clear that the complete essence is always available. Rather, it is by articulation and defense of specific essentialist principles that one is in a position to assert that something is metaphysically necessary for an entity.

<sup>15</sup> Sònia Roca-Royes has pointed out in conversation that the deduction technique here may not be sufficient for drawing conclusions about actual circles. Consider an actual circle  $a$ . Why believe of  $a$  that it is essentially a circle? Does the concept <circle> include the idea that *anything that satisfies being a circle is essentially a circle*? This important question shows that there might be limitations to essence-based approaches.

Consider the following pair of questions: Is it metaphysically possible for a computer to fail to be a material object? Is it metaphysically possible for a computer to attain human-like consciousness? If we are confident that kind membership holds for all entities, along the lines of the arguments offered by Hale, then we can be confident that for a given computer it is metaphysically necessary that it is a material entity, since we are equally confident that it is essentially a material entity. However, can we be as certain that it is metaphysically possible/impossible that the given computer realize human-like consciousness? It appears not. Our confidence in the essentialist principle of kind membership leads us to the conclusion that it is metaphysically necessary that a given computer is a material object. By contrast, though, our judgment that it is metaphysically possible for the computer to be conscious is merely left open by the metaphysical necessities that we do know on the basis of essentialist principles. Were we to discover, with good confidence, that a principle about complexity prohibits computers from instantiating higher human consciousness, we would then be in a position to assert with confidence that it is metaphysically impossible for computers to be able to instantiate human-like consciousness. Our impossibility/possibility judgment about computers is dependent on what essentialist principles we are in a position to knowledgeably/justifiably assert.

As a rough characterization of the picture consider the following. Suppose that there is a range of essentialist principles  $P^1 \dots P^n$  that determines what is metaphysically necessary and possible for a given object  $O$ . Further suppose that we only know some of those essentialist principles, say  $P^1 \dots P^{i < n}$ . One way to understand the necessity-first approach is as follows. On the basis of the essentialist principles we do know we can assert with confidence:

- i. For any property  $Q$  entailed by  $P^1 \dots P^{i < n}$  individually or in combination, it is metaphysically necessary that  $O$  has  $Q$ .
- ii. For any property  $R$  precluded by  $P^1 \dots P^{i < n}$  individually or in combination, it is metaphysically impossible that  $O$  has  $R$ .

And we might take it as a rule of thumb that:

- iii. For any property  $S$  not-precluded by  $P^1 \dots P^{i < n}$  individually or in combination, it is metaphysically possible that  $O$  has  $S$ .

Our confidence in (i) and (ii) should be much higher than that of (iii). For it could be that upon coming to know  $P^{j > i} \dots P^n$  we discover either that some property in that range rules out a prior claim that it is metaphysically possible for  $O$  to be  $S$  or that some property in that range, in combination with the properties known prior, rules out that it is metaphysically possible for  $O$  to be  $S$ . The point may be summed up as follows.

In cases where a complete essence of an entity can be known either *a priori* or *a posteriori*, we would be in a position to know with confidence what the metaphysical necessities and possibilities are for the given entity.<sup>16</sup> In cases where the complete

<sup>16</sup> Sònia Roca-Royes has pointed out in conversation that one should be careful as to whether or not knowledge of completeness is actually possible. For example, one might know all the essential properties of an entity  $O$ , however this is compatible with not knowing that one knows the *complete* essence, since one

essence of an entity cannot be known either *a priori* or *a posteriori*, but only some essentialist principles can be known, our knowledge of metaphysical modality for the given entity will be relatively and relevantly constrained.

## 5 A Comparative Examination of Essentialist-K Theories

Although there are important ways in which Lowe's account and Hale's are similar, there are several commitments that Lowe explicitly makes that are problematic. In this section I would like to present some reasons for thinking that Lowe's account is problematic, and not the path forward for essentialist-k theory; moreover we should pursue the *Hale-Branch* in the epistemology of modality. Let me begin with criticizing the line of reasoning that Lowe puts forward in advancing his epistemology of modality. As a general model, Lowe holds:

1. S knows / has justification for believing that *E* is the essence of *O*.
2. S knows / has justification for believing that if *E* is the essence of *O*, and *E* is inconsistent with *F*, then it is metaphysically impossible for *O* to be *F*.
3. S knows / has justification for believing that *E* is inconsistent with *F*.
- ∴
4. S knows / has justification for believing that it is metaphysically impossible for *O* to be *F*.

This model suffers from at least two technical problems.

On the one hand, note that often the real definition used in the deduction is general, for example that circles are *D*. So, necessarily, if *x* is a circle, then *x* is *D*. But this deduction doesn't tell us anything about the essences of individuals, such as a specific circle *A*. So, for example, it might be that *A* is a circle, and so, by the necessary connection between being a circle and being *D*, it follows that *A* is *D*, but there is no way to say that *A* is essentially a circle, and so no way to say that *A* is necessarily a circle, and thereby no way to say that *A* is necessarily *D*. Thus, the argument only provides us with a link between essence and necessity for an object *O* and its essence.<sup>17</sup>

On the other hand, Joachim Horvath notes that there is good reason to believe that there is a technical error in Lowe's account that is insurmountable, given the other components of his theory. In order for the deduction to provide knowledge one must know (1)–(3) and deduce (4) on the basis of knowledge of them. Let us grant that one can know (1) and (3). Horvath asks: How on Lowe's account can one know (2)? At least one way to articulate Horvath's worry is as follows.<sup>18</sup> Where (M) = premise (2) in the argument above, a fleshed-out version of the worry is:

might not know that they know all the essential properties. This objection is similar to the one that Descartes uses as a response to Arnauld in the *4th set of Objections and Replies* to Descartes' *Meditations on First Philosophy*.

<sup>17</sup> I would like to thank Jessica Leech for presenting this point to me and discussing its significance with me.

<sup>18</sup> I would like to thank Joachim Horvath for presenting this point to me and discussing its significance with me. See his (2014) for extended discussion of the problem.

1. Either (M) is known through (i) intuition, (ii) conceptual analysis, (iii) conceivability, (iv) counterfactual reasoning, or (v) by reasoning from what the essence of essence is.
2. Lowe denies that (i)–(iv) can provide knowledge of (M).
3. Lowe defends a no-entity account of essence.
4. A no-entity account of essence makes it mysterious how one could come to know what the essence of essence is, such that an essence of an entity entails a metaphysical modality.
5. Lowe offers no alternative account of (M).
- ∴
6. Lowe’s account lacks an explanation of our knowledge of (M), and hence lacks an explanation of our knowledge of metaphysical modality.

In addition to the technical problems, there is a core issue that relates to the very idea of essentialist-k theory over which Hale and Lowe are divided. The issue concerns the question: what is an essence? Lowe commits to the view *that essences are not further entities of any kind over and above the entity they are an essence of*. To see Lowe’s motivations, consider the following triad.

(Comprehending Thought)	To think about $x$ one must know part of the essence of $x$ .
(Distinct Entity)	The essence of $x$ is a further entity distinct from $x$ .
(Infinite Regress)	If thinking about $x$ requires knowledge of the essence of $x$ , $E$ , and $E$ itself has an essence $E^*$ , then thinking about $x$ requires knowledge of $E^*$ , <i>ad infinitum</i> .

If we simply assume that it is impossible to know an infinite amount of things, prior to, or when we are thinking about an ordinary object, such as a cat named “Tom,” we can see one reason for Lowe’s commitment to the no-further-entity view: he is committed to the view because he has a commitment to the theses of *comprehending thought* and *infinite regress*, which leads him to deny that essences are distinct entities. By contrast, Hale finds that the thesis of comprehending thought is not plausible, and commits to the view that essences are simply properties of a certain kind.<sup>19</sup>

On my evaluation, Hale is right. Lowe’s thesis is too strong. Lowe’s position suggests the possibility of a debate between three positions:

<i>Epistemic Essentialism</i> :	knowledge of essence precedes knowledge of existence.
<i>Epistemic Existentialism</i> :	knowledge of existence precedes knowledge of essence.
<i>Epistemic Entanglement</i> : <sup>20</sup>	knowledge of existence neither precedes nor is preceded by knowledge of essence.

Although Lowe (2008) offers several arguments in favor of epistemic essentialism, those arguments are not decisive, and in some cases are problematic. Daniele Sgaravatti (2016) has an excellent engagement with one of Lowe’s arguments. He argues that

<sup>19</sup> Bob Hale has made this point in conversation.

<sup>20</sup> I would like to thank Timothy Williamson for discussion of this option in Cologne, Germany 2012.

[Lowe appears to hold] that you cannot think about something unless you know what you are thinking about; and to know what it is that you are thinking about just is to know its essence... [T]he argument fails because of an equivocation in the expression “what a thing is”... which can be used to *indicate the essence of the thing but also, more commonly, some description of that thing which is useful in the context to identify it.*

(Sgaravatti 2016: 227, emphasis added)

That is, Lowe is perhaps right to hold that in order to *think* about anything, one must *think* of it as being *something* or in *some way*. But why require that thought about an entity (comprehending or otherwise) requires that one grasp part of the essence of the entity? Intuitively, Manjula can think about a color through the description “my favorite shade of blue” even though that description does not capture an essential property of the particular color, *cobalt blue*. Moreover, can’t one think about an entity as the entity before them, even though the description “the entity before them” is not essential to the entity picked out?<sup>21</sup>

In some cases, one might even say that we come to discover what we were thinking about because we come to eventually understand what we really could have been thinking about. The name “Vulcan” was introduced through the description “The planet perturbing the orbit of Mercury.” Vulcan does not exist. There are only eight planets. We were not thinking of Vulcan when we were thinking about potential options for what was perturbing the orbit of Mercury. We were thinking about a certain possible object, that we labeled “Vulcan,” which we *mistakenly* believed to be actually perturbing the orbit of Mercury. Of course, there is a sense in which our thoughts about the perturbations of Mercury’s orbit were guided by some deep category divisions. We could not have discovered that the number 2 was perturbing the orbit of Mercury. But is that a sense in which we need to know part of the essence of an entity in order to think about it? It seems to be too coarse-grained to play the role of helping to *lock our thought* onto the entity in question, for it locks on to too many entities.

There are other considerations against Lowe’s view. One consequence of the view is that since ancient Greeks did not possess a correct account of the essences of natural kinds, such as chemical kinds, they could not have any comprehending thoughts about metals, liquids, or gases. And assuming that we now have a better situation with respect to chemical kinds, but we cannot be certain, it follows that we cannot be certain that we have any comprehending thoughts about chemical kinds also. We can put this consequence of the view as an argument for critical consideration.<sup>22</sup>

1. Comprehending thought about an entity or a kind of thing, *x*, requires knowledge of the essence of *x*.
2. Knowledge of the essence *x* for the purposes of comprehending thought requires knowledge of the knowledge of essence, since otherwise we could not distinguish between a thought and a comprehending thought.

<sup>21</sup> I would like to thank Bob Hale for raising this question to me in Cologne in 2012 when I first attempted to defend Lowe’s view. Thinking through this question has led to my change of view.

<sup>22</sup> Sgaravatti (2016: 226–7) considers an argument similar to this one, but backs off from endorsing it because of the complications deriving from premises (2) and (3).



3. We cannot have knowledge of the knowledge of the essence of  $x$ . That is, while we may know what the essence of *water* is, we cannot know that we know the essence of *water*, since we could have good evidence for what water is without knowing that we have the essence of *water*.
- ∴
4. We do not have definitive reasons to believe that we have comprehending thoughts about water.

## 6 A General Problem for Essentialist-K Theories

In this section I want to postulate a tension between essentialist-k theories and mental-operation accounts. The problem derives from considering the very point of departure that motivates essentialist-k theories—the fact that mental-operation accounts, such as conceivability and counterfactual accounts, appear to pay little attention to the role that essence and essential properties play in providing us with confidence in our judgments about metaphysical possibility and impossibility.

Recall that the case I discussed was the possibility of *transparent iron*. On both the conceivability-based and the counterfactual-based account I suggested that we should only be confident that we have conceived of or counterfactually *reasoned* our way to the possibility of *transparent iron*, if we are confident that we have not violated the essence of, or an essential property of, *iron*. How is the issue dealt with in the case of essentialist-k theories? For both Lowe and Hale the following account is available: the real definition or an essential property of *iron* precludes it from entering a state in which it would be transparent to light. What *iron* is, or part of what the essence of *iron* is, makes it the case that light cannot pass through it. The contrast between conceivability-based accounts and essentialist-k theories would be as follows:<sup>23</sup>

<sup>23</sup> Both argument patterns set up ways for thinking about how to arrive at modal knowledge. There are two important questions that can immediately be asked. First, one might note that these patterns are intended to give us modal knowledge, yet they appear to depend on modal knowledge. In the case of conceivability theory, it depends on the fact that something is *conceivable*. In the case of essentialist-k theory one could argue that the inference depends on modal knowledge in either premise (1) or (2). Even on a Finean picture according to which essences are not reductively definable in terms of modality, one might still argue that essences nevertheless belong to the wider family of modality such that knowledge of essences constitutes modal knowledge. In addition, one might argue that the concept of preclusion is modal, and so there is a basic modal component that is not accounted for in the inference. This worry is called the perniciousness worry and it is developed in the work of Michael Wallner. At least one response that can be given to the perniciousness worry is that these derivations do not aim to give us all modal knowledge, but rather some modal knowledge relative to other modal knowledge. That is these inference patterns need not be taken as part of the foundational method for arriving at modal knowledge. While they can be, they need not be. Second, for each theory one might ask a critical structural question. Concerning conceivability theory: How do we know that something is inconceivable as opposed to merely not yet conceived? Concerning essentialist-k theory: How do we know that a property precludes another property as opposed to it merely being the case that the two properties don't occur together? In the first case we can at least say the following. Sometimes we know that a state of affairs is inconceivable, as opposed to merely not conceived, because the state of affairs involves a contradiction. In the second case we can at least say the following. Sometimes we know that a property  $F$  precludes another property  $G$ , as opposed to merely never occurring together, because the instantiation of  $F$  and  $G$  in  $x$  would be a contradiction. In general, in both conceivability theory and essentialist-k theory, we can know that it is impossible for  $x$  to be both a square and a circle from the fact that the properties are contradictory or mutually incompatible.

*Conceivability-Account*

1. If scenario *S* is inconceivable, then *S* is metaphysically impossible.
2. Transparent iron is inconceivable.
- ∴
3. Transparent iron is impossible.

*Essentialist-k-Account*

1. An essential property of iron is *F*.
2. *F* precludes transparency.
3. If an essential property of an entity precludes another property, then it is metaphysically impossible for that entity to have the precluded property.
- ∴
4. Transparent iron is metaphysically impossible.

The tension between the two accounts can be expressed as follows.<sup>24</sup> On the one hand, mental-operation accounts, such as conceivability and counterfactual imagination, suffer from the fact that the individual engaging in conceivability or reasoning via the counterfactual imagination may in fact not be sensitive to the essential properties or the essence of the entity in question. Recall that our confidence in claiming that *transparent iron* is possible cannot derive from our ignorance of what *iron* essentially is. On the other hand, our confidence, in certain cases, that *F* is an essential property or an essence, given by a real definition, of an entity *O* is dependent on the fact that we cannot conceive of or counterfactually reason our way to a situation where *O* is present and not *F*.<sup>25</sup> That is: how do we arrive at the conclusion that something is an essence of an entity other than by trying to see if we can conceive of the entity as being what it is, while lacking the putative property? The mere fact that a piece of metal, *m*, is material, doesn't tell us that it is essentially material. Minimally, we need to know that when something is material, it is essentially material. However, knowledge of the latter is arguably gained by imaginative exercises that allow us to realize that *materiality*, as opposed to *shape*, is an essential property of any entity that has it.<sup>26</sup>

At least one reason for the tension is that when it comes to articulating essentialist principles it is very hard to give an absolute proof of them.<sup>27</sup> Rather, it is easier to draw out considerations that speak highly in favor of why we should adopt the relevant principle. Another reason is that there is a debate over whether one can

<sup>24</sup> I would like to thank Asger Steffensen for discussion of this point in Belgrade, Serbia 2014.

<sup>25</sup> It is important to note that there are alternative ways of thinking about the issue I have raised here. For example, Antonella Mallozzi has an alternative account of how we come to know essences that involves a causal-explanatory account of the role of essences. Because I am not specifying an account of essences in developing the problem here, I will simply leave it open to what degree an account of essences is sufficient to block the problem.

<sup>26</sup> See note 23. Again it is important to note that some might think that an imaginative exercise is not needed. On Antonella Mallozzi's account the causal-explanatory role is key to identifying something as an essence or essential property in certain cases, such as those of chemical kinds.

<sup>27</sup> See Hale (2013: chapter 11) for discussion of this point, especially with respect to the proof of Kind Membership.

conceive of an object as existing without falling under its fundamental kind.<sup>28</sup> If an entity were said to be present in a scenario without possession of its fundamental kind what reason would there be to suggest that it is present? Can the tension be dissolved so as to favor one kind of account over the other?

The upshot of the tension I have been trying to draw out is that we need to distinguish between an account that provides a *fundamental story* about the source of modal knowledge and an account that tells us a story about how a specific epistemic instrument can be a *source of modal knowledge in a specific domain*.<sup>29</sup> Nevertheless, there is a manner in which essentialist-k theories do possess an advantage over mental-operation accounts. That advantage comes from the fact that they do move in an explicit and precise manner from the proper ground of metaphysical modality to knowledge of metaphysical modality. That is, on the condition that essence is the ground of modality, it seems appropriate to offer a foundational story about modal knowledge that moves from the fundamental ground to a specific modal claim. Their superiority lies in the steps they take to modal knowledge, not in the fact that they are the only way to modal knowledge. Let me unpack this in more detail.

One way to cash out the advantage is by thinking of the steps in a modal deduction, of the kind Hale offers, as providing an *argument-based approach or theory-based approach to modal knowledge*.<sup>30</sup> On these approaches the core idea, echoed by Hale himself, is that modal claims should be assessed on the basis of modal arguments and general theories that terminate in a modal conclusion that either is the claim itself or serves as a route for deducing the claim.

For example, if one wants to claim that it is possible for Joel to be born earlier than he was actually born, say January 1, 2014, rather than January 4, 2014, one should defend the claim by listing out explicit premises that terminate in the possibility claim: it is possible for Joel to be born earlier than he was actually born. The *argument-based approach* is to be contrasted, most clearly, with the *conceivability-based approach* on which one would simply claim that it is possible for Joel to be born on January 1, 2014 because they can conceive of a scenario in which Joel is present and it is the 1st rather than the 4th of January. The advantage of the *argument-based approach* is that it offers a secure pathway of evaluation for modal claims over what is offered by *conceivability*. For there are multiple ways in which one can conceive of Joel being born earlier than he actually was. However, the multiplicity of the ways in which this can come about is not important. Rather, the principles that underwrite those different ways, as being legitimate ways in which it can be said that Joel is born earlier than he was actually born, are important.

In addition, an advantage of the *argument-based approach* is that it does not close off either the *conceivability-based approach* or other approaches. First, for example,

<sup>28</sup> For an interesting set of ideas on this debate see Wiggins (2001) and Mackie (2006).

<sup>29</sup> Michael Wallner draws an important distinction between navigation questions about modal spaces, such as logical modality and metaphysical modality, and the access question about how we get access to the modal realm. This distinction is relevant to how we think about the architecture of modal knowledge.

<sup>30</sup> The *argument-based or theory-based approach to modal knowledge* that I suggest here as a way of supplementing Hale's derives from consideration of approaches to modal knowledge defended by Bueno and Shalkowski (2014) and Bob Fischer (2016a).

*conceivability-based* and *counterfactual* approaches appear to be part of the natural story about modal cognition. That is, humans in fact do reason to modal conclusions on the basis of conceivability or counterfactual reasoning. For example, one might judge that a table now located in the corner of the room could be located against the opposing far wall by rotating the table in their mind so as to form a concrete picture of how the table would fit at the other location. Likewise, one might judge that world poverty and inequality could be much lower than they actually are because, on the assumption that they are much lower than they actually are, one doesn't find any contradiction under a robust enough search for one. Moreover, the claim that modal arguments provide us with a secure pathway for assessing modal claims does not in any way stand against a general acceptance of the idea *that there are many pathways to modal knowledge*. It might even be that inconceivability is a better guide to the proper discovery of some essentialist principles, especially those that are not located close to the real definition of the kind in question.

Thus, we might acknowledge a *domain-sensitive/stake-sensitive* account of modal architecture. A sketch of such an account might go as follows:

- In the case of fundamental metaphysics we must take an *argument-based* approach to modal knowledge, since fundamental metaphysics requires precision of proof from basic principles as to what further classes of modal claims are warranted.
- In the case of non-fundamental modal cognition we can accept a *pluralism* of modal instruments. That is we accept the fact that some modal claims can be believed with justification through a plurality of instruments. For example, the claim that the table located at  $L$  could be located at  $L^*$  could be justified on the basis of conceivability, counterfactual reasoning, or essence-based deduction. However, knowledge of modal claims must always be done by way of the *argument-based* approach. Specific techniques justify us in specific non-fundamental domains. But, fundamental knowledge requires *argument* from first principles.
- The acceptability of the kind of justification we offer for a modal claim might itself depend on the kind of project or domain one is engaged in when making the claim. For example, because metaphysics and mathematics are strict sciences of a certain kind, modal claims must be justified by strict argument. In the case of metaphysics we take an *argument-based approach* from fundamental principles themselves that are known on the basis of *argument*, rather than conceivability or counterfactual reasoning just as in mathematics a possibility claim may require a constructive proof or a proof by contradiction. By contrast, in so-called everyday contexts of modal discourse, we can provide justification for a modal claim based on modes of modal reasoning that are appropriate for the claim in question.

Finally, my examination of *essentialist-k theory* is not a defense of it. Rather, it is an examination of some of the main *essentialist-k theories* found in Anglo-Analytic philosophy, and what the prospects are for the *Hale-Branch* of research. My own view is that there is much more that can be fruitfully said about *essentialist-k theory*. In particular, following the influence of Antonella Mallozzi and Michael Wallner,

I maintain that the prospects for the *Hale-Branch* depend on further investigation of the following. (i) *The metaphysics of essence*. What are essences? Are they equally part of the modal realm in the way that necessity and possibility aid in defining the modal realm? (ii) *The epistemology of individual versus general essences*. Are there only *general essences* that we can know or are there also *individual essences*? For example, can we only know that if Fido is a dog, then he is essentially a dog, or can we know also, simply, that Fido is essentially a dog? (iii) *The epistemic role of bridge principles*, especially how *essentialist-k theory* is objectively structured and how individuals that use a mental operation to gain modal knowledge or justification are ultimately justified in light of the structure of *essentialist-k theory*.

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