

ON THE ESSENCE OF THOUGHT EXPERIMENTS: A Neo-Aristotelian and Phenomenological Approach



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Abstract

Thought experiments feature prominently in both scientific and philosophical methods. In this paper, I investigate two questions surrounding knowledge in the thought experiment process. First, on what implicit knowledge do thought experiments rely? Second, what provides epistemic justification for beliefs acquired through the process? I draw upon neo-Aristotelian metaphysics and Husserlian phenomenology to argue that essence is the object of implicit knowledge that anchors the imagined possibilities involved in thought experiments to the actual world, and that this essentialist knowledge enables the possibility of prima facie justification being conferred by the phenomenological givenness of thought experiment scenarios.

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I. INTRODUCTION

Thought experiments play a major role in both scientific and philosophical methodology, but there are important questions concerning their contents and how they work. One such question that arises is what I will call the *metaphysical question*: Given that thought experiments significantly rely on implicit knowledge within the subject, what is this implicit knowledge *of or about*? Another question, which I will call the *justification question*, is of an epistemological nature: Since thought experiments are typically meant to result in the subject gaining new knowledge—which in this paper I will assume requires epistemic justification—what provides the justification for this belief? We can better frame these two critical questions as follows:

The Metaphysical Question: What is the implicit background knowledge involved in a thought experiment of or about?

The Justification Question: What provides the justification for the new beliefs the subject acquires through the thought experiment process?

I begin the following discussion by introducing two frameworks for understanding essence in Section II. I continue by answering the metaphysical question in Section III, where I propose that the most important response to the metaphysical question is the subject's implicit knowledge of *essences*. Knowledge of essence not only allows the subject to mentally present objects in imagination, but also serves to link the imagined possibilities to the actual world. In Section IV, I answer the justification question by arguing that the new beliefs acquired through the thought experiment process are given their justificatory force by the phenomenological character of the thought experiment. This phenomenological character includes the "givenness" of the presented thought experiment scenario with all its related objects, whose essences ground the possibility of "frustration," which I argue is necessary for justification. I conclude in Section V by briefly considering limits of essentialist knowledge.

II. NEO-ARISTOTELIAN METAPHYSICS, HUSSERLIAN PHENOMENOLOGY, AND ESSENCE

It seems that thought experiments crucially rely on tacitly introduced background knowledge, yet what the objects of knowledge are remains unclear.¹ My proposal is that the most important answer to the metaphysical question is that the implicit background knowledge involved in a thought experiment concerns *essences*. I will define "essence" more precisely in the following paragraph, but first, because my argument involves essence, I wish to incorporate two sources that I believe might prove fruitful for answering both the metaphysical question and justification question: neo-Aristotelian metaphysics and Husserlian phenomenology. Despite their many dissimilarities, these two views share an understanding that what we refer to as "reality" seems to have a structure involving essentialist notions that is not *merely* imposed by the mind of the subject (an "ordered" view of reality, using Schaffer's terms²), but that neither view treats essence as an *entity additional to the associated object*.³ One can therefore adopt a notion of essence compatible with both views without making weighty ontological commitments, an approach I believe might be useful for addressing thought experiments.

Let us turn to defining essence. Largely owing to the work of Kit Fine, the notion of essence has seen significant revival.⁴ The classical modal notion of essence conceives of essence as analyzable in modal terms:

Modal Understanding of Essence: A property is possessed *necessarily* by an object only if it is possessed *essentially* by that object.

The Finean notion of essence, however, flips the classical relationship between essence and metaphysical necessity:

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- 1 For examples of other authors that take thought experiments to rely on implicit knowledge, see John D. Norton, "On Thought Experiments: Is There More to the Argument?" *Philosophy of Science* 71, no. 5 (2004): 1139–51, 10.1086/425238; and Tamar Szabó Gendler, "Thought Experiments Re-thought—and Reperceived," *Philosophy of Science* 71, no. 5 (2004): 1152–63, 10.1086/425239.
 - 2 Jonathan Schaffer, "On What Grounds What," in *Metametaphysics: New Essays on the Foundations of Ontology*, ed. David Manley, David J. Chalmers, and Ryan Wasserman (Oxford: Oxford University Press, 2009), 355.
 - 3 Chang Liu, "Eidetic Variation as a Source of Metaphysical Knowledge: A Phenomenological Contribution to Neo-Aristotelian Metaphysics," *Res Philosophica* 100, no. 3 (2023): 333–34, 10.5840/resphilosophica20236899.
 - 4 For a more detailed discussion of essence that I will merely outline here, see Kit Fine, "Essence and Modality," *Philosophical Perspectives* 8 (1994): 1–16, 10.2307/2214160.



Finean Understanding of Essence: A property is possessed *essentially* by an object only if it is possessed *necessarily* by that object.

The reasoning behind this inversion can be seen in Fine's example of a set containing Socrates as its sole member. Though "belonging to the singleton set containing Socrates" is a property that is necessarily had by the object named 'Socrates,' it seems strange to say that this property is *essential* to Socrates, (i.e., that it is part of the *very nature* of Socrates as an object to belong to this set).⁵ What we should rather say, as Fine argues, is that Socrates necessarily belongs to the set *because* of the very nature of Socrates, (i.e., *in virtue of what it is to be Socrates*). Additionally, we can notice that imaginatively removing any essential property from Socrates would result in Socrates ceasing to exist as that object. So, an object's essence—which is constituted by all of its essential properties—is best understood as its *intrinsic nature*. While this is a specifically neo-Aristotelian view of essence, I believe this understanding to be broadly compatible with Husserlian phenomenology, which understands essence as that which is invariable in an object—or plurality of objects—of experience. I will therefore assume this definition for the remainder of the paper.

III. ANSWERING THE METAPHYSICAL QUESTION

Now that we have defined essence, we can demonstrate why thought experiments draw on implicit essentialist knowledge. For the subject to bring some particular object to be presented before the mind in imagination, the subject relies on a previously acquired concept in their background knowledge. However, *all* the characteristics of the particular object need not be filled out in imagination. Many of its attributes may be left as indeterminate, with the scope of possible attributes being limited by the previously formed concept. What I wish to argue is that part of the contents of the concept involved include *some* knowledge or understanding of *what it is to be a member of the relevant kind, which is part of the essence of the object*. Here I want to emphasize that I do not claim that a *complete* knowledge of essence is necessary for imagining the object, but only *partial* knowledge; a child's concept of a cat might be less developed or filled out than an adult's concept, but both individuals have *some* knowledge of what a cat is such that both can easily imagine an instance of a cat.

The truth of the essentialist claim can be seen by considering a corresponding counterfactual claim: If it were the case that *no* such

categorical knowledge or understanding were present in a subject, the thought experiment would become *inaccessible* for the subject, since *they would not know what kind of object(s) to present in imagination*. But thought experiments *are* accessible for their subjects, provided those subjects are located in a proper context, so their subjects must have at least some knowledge of the essence of the objects involved in the thought experiment. We can state this argument more precisely:

1. If a subject had no knowledge of the essence of an object, a thought experiment that crucially involves the object would not be accessible for the subject
2. A thought experiment crucially involves the object and is accessible for the subject.
3. Therefore, it is not the case that the subject has no knowledge of the essence of the object.
4. Thus, the subject has some knowledge of the essence of the object.

We can also consider a similar counterfactual claim in relation to the language of the thought experiment narrative: If it were the case that the thought experiment narrative contained sentences in which, for example, certain categorical terms were present that were crucial to the design of the thought experiment, but these terms *lacked any semantic meaning or referent for the subject*, those sentences within the thought experiment narrative would become *meaningless for the subject* given that the meaning of a sentence in a language is determined by the meaning of each of the composite terms in that sentence.⁶ This would, again, result in the subject being unable to access the thought experiment. So, since thought experiments and their respective narratives are indeed cognitively accessible for their comprehending subjects, it seems that those subjects possess at least partial categorical knowledge or understanding of the *natures* of the objects involved in the thought experiment (i.e., the *essences* of the objects presented in imagination, and their related terms).

The tacit knowledge of essence involved in thought experiments also serves to tether what is metaphysically possible to what is actual. On the neo-Aristotelian view, the ontological picture is squarely "actualist" in nature.⁷ That is, for any entity that exists, it exists as actual and *not* as a mere possibility. What is possible therefore finds its grounds, source,

6 Zoltán Gendler Szabó, "Compositionality," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta and Uri Nodelman (2022), <https://plato.stanford.edu/archives/fall2022/entries/compositionality/>.

7 See Barbara Vetter, "Recent Work: Modality without Possible Worlds," *Analysis* 71, no. 4 (2011): 742–54, 10.1093/analysis/anr077.

5 Manuel García-Caepintero, "A Non-modal Conception of Secondary Properties," *Philosophical Papers* 36, no. 1 (2007): 22.



or truth-maker in what is actual.⁸ Though several modal notions may be candidates for fulfilling the role of tying possibilities to the actual world, here I take the broadly essentialist position. I have argued in the current section that essentialist knowledge gets tacitly introduced into the imagined scenario of the thought experiment through our background knowledge, which includes formed concepts whose contents I take to involve some knowledge of essence. Furthermore, my claim is that this implicit essentialist knowledge also serves as a link between the imagined possibilities of thought experiments and the actual world.⁹ In other words, following the broader claim of neo-Aristotelian essentialism, essences located in the actual world are to be identified as the grounds, source, or truth-maker of the possibilities imagined by the subject in a thought experiment.

In the epistemology of metaphysical modality, it has been demonstrated that any “mental-operation-based account” of how we come to know modal truths, including truths about possibility, critically relies on an account of our knowledge of essence.¹⁰ As Anand Jayprakash Vaidya and Michael Wallner highlight, without an epistemology of essence to support an epistemology of modality, the “problem of modal epistemic friction” arises. There is nothing to provide the epistemic “pushback” necessary for keeping us from getting off-track or becoming arbitrary in our modal reasoning. Applied to thought experiments, which involve modal reasoning necessarily, we also need something to supply epistemic friction in the possible scenario of a thought experiment to avoid arbitrariness. As in the wider case of modal epistemology, knowledge of essence can bestow such friction. This makes sense since how the scenario unfolds in a thought experiment partially depends on the objects involved, their properties, and the relations between those objects. Thus, the essences of all of these play a determinative role in the outcome of the thought experiment. Other things might also fulfill this role, but here we are interested in what holds across *all* possibilities. Essence seems to fulfill this requirement nicely. Because the essence of an object holds necessarily, it holds across *all* possible scenarios, including the real world. Our implicit knowledge of essence therefore functions to anchor the possibilities imagined in thought experiments to *this* world, furnishing the thought experiment with the epistemic friction needed for us to think that we are tracking modal truths.

8 Vetter, “Recent Work,” 742.

9 For a discussion of what sorts of possibilities thought experiments involve, see Alexander Geddes, “Judgements about Thought Experiments,” *Mind* 127, no. 505 (2018): 35–67, 10.1093/mind/fzx005.

10 Anand Jayprakash Vaidya and Michael Wallner, “The Epistemology of Modality and the Problem of Modal Epistemic Friction,” *Synthese* 198, no. 8 (2021): 1909–35, 10.1007/s11229-018-1860-2.

IV. ANSWERING THE JUSTIFICATION QUESTION

Thought experiments are usually designed to result in new knowledge in the subject undergoing the process; but what provides justification for the newly formed beliefs constitutive of such knowledge? I propose that Husserlian phenomenology can be of use here. Specifically, I will draw on the work of Harald Wiltsche and Philipp Berghofer’s work on a “phenomenological conception of experiential justification” (PCEJ).¹¹ By doing so, I hope to show that the phenomenological character of thought experiments provides their subjects with *prima facie* justification for new beliefs.¹²

I will begin by discussing Berghofer’s phenomenological theory of justification. Berghofer defines PCEJ as follows:

PCEJ: Certain experiences have a distinctive, justification-conferring phenomenology and if an experience has such a justification-conferring phenomenology with respect to a proposition, the experience provides immediate *prima facie* justification for believing the proposition.¹³

Berghofer clarifies that an experience’s “phenomenology” here means the “what-it-is-like-ness” of the experience for the subject.¹⁴ Perceiving an object thus has a different phenomenology than imagining the object.¹⁵ Both of these experiences concern the same *object* but are different *kinds* of experiences.¹⁶

Before going further, it will be helpful to briefly introduce some terminology. Phenomenologists sometimes refer to an object’s *horizons*,

11 Philipp Berghofer, “Husserl’s Conception of Experiential Justification: What It Is and Why It Matters,” *Husserl Studies* 34, no. 2 (2018): 145–70, 10.1007/s10743-018-9225-8; Philipp Berghofer, “Towards a Phenomenological Conception of Experiential Justification,” *Synthese* 197, no. 1 (2020): 155–83, 10.1007/s11229-018-1744-5.

12 For a somewhat similar view of thought experiments and justification that lacks the essentialist components I emphasize in this paper, see Elijah Chudnoff, “The Place of Expert Intuition in Philosophy,” in *Forming Impressions: Expertise in Perception and Intuition* (Oxford: Oxford University Press, 2020): 184–207. For differences between Chudnoff’s view of justification and Berghofer’s, see Berghofer, “Phenomenological Conception,” 168–72.

13 Berghofer, “Phenomenological Conception,” 156.

14 Berghofer, “Phenomenological Conception,” 156.

15 John Bengson, “The Intellectual Given,” *Mind* 124, no. 495 (2015): 707–60, 10.1093/mind/fzv029.

16 Harald A. Wiltsche, “Intuitions, Seemings, and Phenomenology,” *Teorema: Revista Internacional de Filosofia* 34, no. 3 (2015): 61.



or a background of possibilities *co-given* with the object in experience.¹⁷ For instance, when I have an experience of perceiving a red cup in front of me, the cup presents one side of itself to me; but it also presents itself as something that has an inside, a backside, etc., with each of these having a possible color, shape, etc., to which I could turn my attention and direct my inquiry. Just as a spotlight on a stage can shift its focus and with it the blurry horizon at the edges of its illumination, so can an object be further investigated by shifting one's attention or perspective with respect to the object, which in turn shifts the implicit background or horizon. Additionally, *fulfillment* and *frustration* refer to the relation between the object as we *anticipate* it to be (the *intentional object* or simply, *intention*) and the object as it is *intuitively presented* before us in experience (in its *givenness*).¹⁸ If the object as it is presented before us matches or corresponds to the object as we anticipate it to be, our anticipations are *intuitively fulfilled*. If the presented object lacks correspondence to our anticipations, then our anticipations are *frustrated*. And, just as the clarity of an object's horizons can come in degrees, so fulfillment and frustration can also come in degrees.

Let us now turn back to perception and imagination as kinds of experiences.¹⁹ As Wiltsche notes, these differ in two important respects: (1) The objects of perception present themselves as actual, whereas the objects of imagination present themselves as non-actual, and (2) in perceptual acts we do not have voluntary control of our experiences, whereas in imaginative acts we do. This means that while our anticipations cannot be arbitrarily fulfilled in perception, we *can* arbitrarily fulfill them in imagination.²⁰ Thus, the phenomenological character of perceptual experience can be a source of justification, but the phenomenological character of imaginative experience cannot provide justification on its own.²¹ So, for belief produced by the imaginative process of a thought experiment to be justified, something else is required. We need something that pushes against the arbitrariness of imaginative acts. Here we are confronted with the problem of modal epistemic friction. Put differently, we need some kind of limitation *that makes frustration of our anticipations possible*, such that our anticipations cannot simply be fulfilled arbitrarily.

17 Wiltsche, "Thought Experiments," 346–48.

18 Wiltsche, "Thought Experiments," 345–46; Wiltsche, "Intuitions," 57–78.

19 For more details on kinds of experiences, see Elijah Chudnoff, "Presentational Phenomenology," in *Consciousness and Subjectivity*, ed. Sofia Miguens and Gerhard Preyer (Frankfurt: Ontos Verlag, 2012), 51–72, 10.1515/9783110325843.

20 Harald A. Wiltsche, "Phenomenology and Thought Experiments: Thought Experiments as Anticipation Pumps," in *Routledge Companion to Thought Experiments*, ed. Michael T. Stuart, Yiftach Fehige, and James Robert Brown (New York: Routledge, 2018), 349–51.

21 Berghofer, "Phenomenological Conception," 155–83.

Again, essence seems to be a plausible candidate here. Wiltsche observes, "If we want to learn about the conditions of fulfillment and frustration in a given imaginative process, we have to look closely at the concepts through which the horizontal anticipations are determined."²² In Section III, I showed that these concepts include knowledge of essence, which offers itself as a plausible source of epistemic friction in modal reasoning. Phenomenologically, the implicit knowledge of essence that allows me to bring particular objects to be given in an imaginative experience on the one hand—and determines the anticipations I have towards those objects in the horizons of my imaginative experience on the other—*also furnishes the possibility of my anticipations being frustrated*.²³ Frustration occurs when my explicit knowledge (i.e., the imaginative experience of the objects and their interactions in the thought experiment scenario that I attentively encounter) surprises me by lacking fulfillment with respect to my *implicit*, anticipatory intentions (which include my implicit knowledge of essence) within the *horizons* of the imaginative experience. I suspect that my surprise here is possible because of a lack or an overabundance of "filling in" of the particular object in imagination, such that what I implicitly know *must* be true of the nature of the object comes into conflict with what I observe in its explicit presentation. Further, I notice that the thought experiment scenario presents itself as *having* to proceed a certain way because of the very natures of the objects and relations involved. Thus, my resulting belief arises due to intuitively observing the outcome, while also intuitively observing *co-given explanations* for the outcome (i.e., the essences of the involved objects and their relations and the kind of experience that the intuitive experience is), such that *I cannot arbitrarily imagine a different outcome*.²⁴ So, since frustration is made possible by essentialist knowledge in the imaginative scenarios of thought experiments such that anticipations cannot be arbitrarily fulfilled, it is also possible for the phenomenological givenness of a thought experiment—which includes all of its objects and their relations in conjunction with the kind of experience a thought experiment is—to confer *prima facie* justification (i.e., by PCEJ) to beliefs acquired through the thought experiment process.

22 Wiltsche, "Thought Experiments," 353.

23 I mean 'imaginative experience' to refer specifically to an intuitive presentational state. See Bengson, "Intellectual Given," 725–32.

24 Chudnoff, "Presentational Phenomenology," 57.



V. FINAL THOUGHTS

One might justifiably question whether we really can acquire knowledge of essences and how this is accomplished. Further, it seems clear that there is essentialist knowledge that cannot be ordinarily discerned by us. What if the essentialist knowledge contained in the concepts that we deploy in thought experiments is incomplete or inaccurate?

First, I make no attempt to provide an account of how we *acquire* knowledge of essences in the current paper. My aim has simply been to show that we have at least a partial knowledge of them. Second, while it seems true that there are hidden essences that we are ordinarily unable to discern, it also seems plausible that the evolutionary process has provided us with the ability to discern enough essentialist facts about our immediate environment and the ordinary objects in it for navigation and survival. Consider our everyday use of simple, counterfactual reasoning that helps determine our actions as a kind of simple thought experiment: If you were to drop a glass of water on your floor, what would happen? The outcome depends on at least *some* knowledge of the nature of glass, water, your floor, etc., but it does not depend on your knowing that water is essentially H_2O . Still, this might indicate that there are limits on the completeness or scope of concepts we can accurately deploy in our imaginative reasoning.

Nevertheless, by approaching the metaphysical question and the justification question in the present way, I hope to demonstrate the theoretical promise of essentialist knowledge for thought experiments. On this view, not only is essence the object of our implicit knowledge that we draw upon for thought experiments, linking them to the actual world, but essentialist knowledge allows for the *prima facie* justification of new beliefs we acquire through the thought experiment process—a process of central importance to both scientific and philosophical inquiry.



Hayden Macklin is a senior-level philosophy major at California Polytechnic State University in San Luis Obispo, California. His primary philosophical interests include modal metaphysics, modal epistemology, philosophical logic, and metaphilosophy. He hopes to pursue a PhD in philosophy and to one day support future students in their own philosophical endeavors.

