Aristotle’s Epistemology of Essence

Abstract: Assuming that things have essences, how do we acquire knowledge of these things’ essences? A number of scholars have suggested that Aristotle’s answer to this question can be found in his Posterior Analytics. After clarifying Aristotle’s theory of essence, I defend one of the three main interpretations of Aristotle’s epistemology of essence against its rivals. In particular, I argue that both Bronstein’s (2016) innovative Socratic interpretation and the traditional Intuitionist interpretation favored by Irwin (1988), Frede (1987), and Ross (1949) face the same devastating objection, an objection which is avoided by the alternative and textually well-supported Explanationist interpretation. In addition to highlighting the philosophical advantages of the Explanationist View, I show how Bronstein’s textual arguments against the Explanationist View can be rebutted. At the core of the paper is the twofold thesis that (a) Aristotle offers an explanation-based theory of essence, according to which a kind’s essence consists in its explanatorily basic necessary features, and that (b) given this theory of essence, his accompanying epistemology of essence must be based on explanation rather than division, (non-abductive) induction, or the deliverances of a faculty of intuitive reason.

“It is evident too that when A belongs to B, then if there is some middle term you can prove that A belongs to B, and the elements of this are as many as the middle terms (for the immediate propositions are the elements, either all of them or the universal ones); but if there is no middle term, there is no longer a demonstration; but this is the path to principles [all’ he epi tas archas bodos hautē estin].” – APo I.23 84b19-24.

§1. Introduction

How do we acquire knowledge of the essences of things? This is an important question for any committed essentialist, though one which has little attention in contemporary discussions of essentialism.¹ Before discussing this epistemological question, however, we must clarify the conception of essence is at issue. It has become commonplace to distinguish between two conceptions of essence: the modal account and the real definition account.² According to the modal account of essence, essences are just collections of de re necessary properties. On this view, a property P is essential to x iff it is necessary that x has that property if x exists, and x’s essence just consists in all of those properties which are essential to x.³ According to the real definition account of essence, essences are “real definitions.” On this view, a property P is essential to x iff being/having

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¹ For some examples of contemporary discussions of how we can come to know the essences of things, see Hale 2013: ch.11, Lowe 2008, Lowe 2012, Oderberg 2007: ch.3, Tahko 2017, and Tahko forthcoming.
² For a classic and influential presentation of this distinction, see Fine 1994.
³ As Fine (1994: 3-4) observes, there are two variants of the basic modal account. The first variant makes the necessary possession of the property dependent on the existence of the object: X has a property essentially iff it is necessary that X has the property if X exists. The second variant makes the necessary possession of the property dependent on the identity of the object: X has a property essentially iff it is necessary that something has the property if it is identical to X.
P is part of the real definition of $x$, i.e., part of what it is for $x$ to be (or for something to be $x$). The second view is intended to be more fine-grained than the former in that any property which is essential in the second sense is essential in the former sense, but not vice-versa. Put differently, whatever belongs to an entity’s real definition must belong to that entity by necessity, but not all of what belongs to an entity by necessity need be part of its real definition.

The real definition account of essence has become dominant among contemporary essentialists, especially those who identify as “neo-Aristotelian.” All commentators agree that Aristotle endorses a real definition account of essence since he explicitly says that there are some attributes (e.g., *in itself accidents* (*kath’ hauto sumbebêkota*)) which belong to their subjects by necessity but not essentially. For example, 2R (i.e., having interior angles whose sum is equal to that of two right angles) is a necessary but non-essential attribute of triangles; even though all triangles have 2R, this characteristic is not part of the real definition of a triangle.⁴

If one accepts a real definition account of essence, two distinct epistemological questions arise. First, a modal knowledge question: how do we know that a feature belongs to a subject by necessity? For example, supposing that electrons necessarily have mass and charge, how do we know this? Second, an essentialist knowledge question: how do we know that a feature is essential to something? For example, supposing that electrons essentially have a charge of $\sim 1.6 \times 10^{-19}$ Coulombs, how do we know this? The first question, the *modal knowledge question*, confronts essentialists and non-essentialists alike and has been much discussed by contemporary epistemologists. If there are necessary truths (e.g., necessarily, $2 + 2 = 4$), how do we acquire knowledge of such truths? The second question, the *essentialist knowledge question*, confronts all essentialists but reduces to the first question for those who accept a modal account (rather than real definition) account of essence. By contrast, for real definition essentialists, the *essentialist knowledge

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⁴ See *Metaph.* V.30 1025a30-34. See §3.2 below for further discussion.
question presents a distinct challenge, one which has not been much discussed in the literature. The challenge can be made salient by considering a contrastive question: how do we know that a feature is a part of the real definition of $x$ rather than one of $x$’s necessary but non-essential attributes?\(^5\) For example, how do we know that having a charge of $\sim 1.6 \times 10^{-19}$ Coulombs is part of the real definition of an electron rather than one of its merely necessary properties?

This epistemological question is closely related to a non-epistemological question which confronts real definition essentialists: just what is it for something to be part of the real definition of something rather than a mere necessary feature of it? Let us call this the real definition question. Some real definition essentialists seem to take the notion of a real definitional essence as a primitive, but this is not required. The primitivist says that the relation of being essential to $x$ is a primitive; nothing further can be said about what makes a feature bears this relation to $x$. By contrast, the non-primitivist thinks that something further can be said about what makes a feature essential to something else.

In what follows, I examine Aristotle’s accounts of real definition and essentialist knowledge.\(^6\) In particular, in answer to the real definition question, I argue that Aristotle holds a non-primitivist theory of essence. In particular, he holds an explanationist theory of essence, according to which a kind’s essence consists in its explanatorily basic necessary features, i.e., (a) necessary features of the kind which are (b) not explained (“caused”) by other features of the kind and which (c) explain (“cause”) (at least some of) the kind’s other necessary (or for the most part) features. In answer to the essentialist knowledge question, I argue that Aristotle proposes an explanationist epistemology of essence, according to which we come to know a kind’s essence by first discovering a number of its

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\(^5\) This question is sometimes called the ‘modal sorting’ question, for it asks how we sort merely necessary truths from essential truths. See, e.g., Vaidya 2015.

\(^6\) Along the way, I say some things about Aristotle’s answer to the modal knowledge question, though I do not focus on this issue. This issue merits more detailed treatment beyond the scope of this paper.
regular (i.e., necessary or for the most part) features and then seeking out which feature(s) of the kind could explain its possession of these regular features.

My goals are twofold. First, I aim to clarify Aristotle’s answers to the real definition and essentialist knowledge questions and to show why certain alternative interpretations of Aristotle’s epistemology of essence run into philosophical and exegetical problems. Second, I aim to draw a general lesson about how these questions are linked: the general lesson is that one’s answer to the essentialist knowledge question should be guided by one’s answer to the real definition question. For example, if one’s theory of essence holds that what makes a necessary feature essential is that explanatorily basic (as I argue Aristotle’s theory of essence does), then one’s recommended method for discovering which features are essential must be capable of reliably distinguishing explanatorily basic features from non-explanatorily basic features. A method which cannot do this will not provide reliable information which features are essential and hence cannot deliver knowledge concerning which features are essential.7

§2. Aristotle’s Epistemology of Essence: Three Interpretations

§2.1 Shared Background Details

Many scholars have suggested that Aristotle’s answer to the essentialist knowledge question, or at least part of such an answer, can be found in his Posterior Analytics (APo).8 Though there is a

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7 This general lesson is basically an essentialist version of the “integration challenge” introduced by Peacocke (1997, 1999) into contemporary modal epistemology. The integration challenge is the challenge of integrating one’s metaphysics for a given domain with one’s epistemology for that domain such that the epistemology succeeds in explaining how we have the knowledge we take ourselves to have of that domain.

8 See Bolton 1987, Bolton 2017, Bolton & Code 2012, Bronstein 2016, Charles 2000, Charles 2010, Irwin 1988: 134-150, Lennox 2001a, and Ross 1949: 84-86. Charles claims that the second book of the Posterior Analytics details Aristotle’s search for “a method” which can be used “to establish which features of a kind define it” (197). Lennox also recognizes that the question “How does Aristotle think that we come to distinguish defining and proper attributes?” is crucial to understanding his scientific method (2001a: 161). Finally, much of Bronstein’s recent book Aristotle on Knowledge and Learning (2016), the latest monograph on the Posterior Analytics, is focused on the question of “how we discover that an attribute is part of the essence of its subject” (p.111). Indeed, discussion of this issue is what drives Bronstein’s innovative “Socratic” approach to essentialist knowledge (to be discussed below). Some scholars have disputed this, arguing that APo is not at all concerned with how knowledge (including knowledge of essences) is acquired (see, e.g., Barnes 1969 and Burnyeat 1981). In a similar vein, some authors suggest Aristotle relies on dialectical methods (discussed in detail in Topics) rather than analytical methods to reach and justify his conclusions about the essences of things in his philosophical works (e.g., Physics, Metaphysics, and De Anima) as opposed to “scientific” works (e.g., the biological works)
consensus that Aristotle attempts to answer this question, there is disagreement about just what his answer is. In particular, three interpretations of Aristotle’s answer have emerged: the Intuitionist View, the Explanationist View, and the Socratic View. I shall outline these competing interpretations in the subsequent section, but first it is necessary to clarify two background details agreed upon by all three interpretation.

First, it is widely accepted that Aristotle is, as a matter of science (epistēmē), primarily interested in the essences of kinds or universals (e.g., human, thunder, eclipse, etc.) rather than those of individuals (e.g., Socrates, this instance of thunder, the eclipse on October 9th, 425BC, etc.). For this reason, the discussion of this paper focuses on the essences of kinds and how we come to know them rather than those of individuals. Nonetheless, it should be noted that, given that Aristotle is no Platonist and denies the existence of separately existing universals, his focus on kinds should not be taken to be a focus on universals which exist separately from their instances. Instead, it should be taken as a focus on what is true of all (or at least most) individuals of a given kind as members of that kind. For example, to search for what holds universally of triangles is not to seek what holds of a separately existing Form, Triangle itself, but instead to seek what necessarily (or at least for the most part) holds of all particular triangles insofar as they are triangles. To search for the essence of

(see Burnyeat 2002, Owen 1986/1961, and Owen 1986/1970). While this debate is important and merits discussion, I leave it aside in this paper and assume, with the scholars mentioned above, that the Posterior Analytics does in fact present a view about how knowledge (and in particular knowledge of essences) is acquired. Moreover, in this paper, I do not address the question of whether Aristotle employs dialectical or analytical methods in his philosophical works. For a detailed discussion of the debate between analytical vs. dialectical interpretations of Aristotle’s methodology, see Bolton 1987, Bolton 1990, and Bolton 1991.

9 I adopt the names which Bronstein (2016: ch.8) gives to these three interpretations.

10 For textual evidence of this, see APo I.8, 1.24, and 1.31.

11 Contemporary essentialists who think individuals have essences should note that, though I limit my discussion to the essences of kinds, the discussion of this paper would apply to the essences of individuals as well. For some evidence that Aristotle countenances essences for individuals in addition to essences for kinds, see Metaph. V.18 1022a24-28 (where Aristotle speaks of the “essence of Callias”) and Metaph. VII.4 1029b14-16 (where Aristotle speaks of “your essence”).

12 In APo I.4, Aristotle characterize a universal as follows: “I call ‘universal’ what holds of every case and in itself (kath’ hauto) and as such (ba auto)” (73b25-26). He goes on to clarify that what holds in this way is also necessary: “It is clear, then, what is universal holds of its objects from necessity” (73b26-29). Moreover, he also clarifies that to belonging “in itself” and “as such” are equivalent: “To hold of something in itself and to hold of it as such are the same thing” (73b29-30).
a triangle, moreover, is not to search for the real definition of a separately existing Form, Triangle itself, but rather for the real definition which makes clear what it is for something to be a triangle (i.e., what a triangle is \textit{qua} triangle).\textsuperscript{13}

Second, all three interpretations agree that, in typical cases, some prior knowledge of a kind is required for one to know its essence. Aristotle holds that our knowledge (\textit{gnōsis}) begins with perception, which retained by memory and accumulated over time eventually becomes \textit{experience} (\textit{empeiria}). For example, in a well-known passage in \textit{APo} II.19, Aristotle asks “how principles become known (\textit{gnōrimoi})” (99b18-19) and answers,

…from perception there comes memory, as we call it, and from memory when it occurs often in connection with the same [kind of] thing, experience (\textit{empeiria}) comes about (for memories that are many in number constitute a single experience). And from experience, or from the whole universal that has come to rest in the soul (\textit{ek d’ empeirias i ek pantos eremesantos tou katholou en té psuché}) (the one with the many, whatever is one and the same in all those things), there comes a principle of art (\textit{technēs}) and of science (\textit{epistēmēs}). (100a3-9; cf. \textit{Metaph.} A.1 980a27-982a2).

Aristotle renounces the view that our knowledge of principles – which include definitions or accounts of the essences of kinds – is innate (and only in need of recollection – cf. \textit{Meno} 80d-81e) and holds instead that this knowledge is acquired only after one has acquired sufficient empirical knowledge (\textit{empeiria}) of the kind.\textsuperscript{14} Much more could be said to specify what exactly this prior empirical knowledge amounts to, but this is controversial and there is no agreement among proponents of the three interpretations of Aristotle’s epistemology of essence. In light of that, I shall leave off specifying the details of this prior knowledge in this paper. For now, we have said enough to reformulate the essentialist knowledge question in Aristotle’s own terms: once we have sufficient empirical knowledge (\textit{empeiria}) of a kind, how do acquire knowledge of its essence?

\textsuperscript{13} For evidence of Aristotle’s renunciation of separately existing universals, see \textit{APo} I.31 87b31-33; \textit{APo} I.11 77a5-9; \textit{APo} I.22 83a30-35 with \textit{APo} I.24 85a31-85b23; and \textit{Cat.} V 2a35-2b1.

\textsuperscript{14} For further confirmation of this point, see \textit{APo} I.18.
§2.2 The Three Interpretations

According to the Intuitionist View, we come to know a kind’s essence by rational intuition or a process of intuitive induction, the result of which is a state (hexis) of nous, i.e., a state of intuitive knowledge, of the kind’s essence.\(^\text{15}\) This intuitive knowledge is epistemically basic or foundational, i.e., it does not depend on one’s other knowledge or beliefs for its justification or warrant. This does not imply that no prior empirical knowledge of the kind is needed. As Terence Irwin (a prominent proponent of this interpretation) warns, “The acquisition of nous is not meant to be magical, entirely independent of inquiry.”\(^\text{16}\) Indeed, proponents of the Intuitionist View concede that, in order to achieve this intuitive knowledge of first principles, one must have sufficient prior experience with the subject matter.\(^\text{17}\) But though “experience and familiarity with appearances are useful to us as a way of approaching the first principles… [and] may be psychologically indispensable as ways to form the right intuitions,” nonetheless, Irwin tells us, “they form no part of the justification of first principles. When we have the right intuition we are aware of the principle as self-evident, with no external justification.”\(^\text{18}\) In short, according to the Intuitionist View, sufficient accumulated experience (empeiria) provides the enabling conditions for us to intuit scientific principles (including the essences of the kinds). Though our empirical knowledge plays this enabling role, it does not provide any justification for judgements about what is essential to what. Instead, essentialist

\(^\text{15}\) Contemporary proponents of this interpretation, where our knowledge of essences is held to be self-justified or epistemically basic, include Frede 1996, Irwin 1988: 124-125, 130-50 and Ross 1949: 84-6. It should be noted that, though Ross and Irwin attribute an Intuitionist View to Aristotle, they themselves do not claim that the view is philosophically satisfying. In fact, Irwin explicitly discusses and Ross gestures at its philosophical flaws.

\(^\text{16}\) Irwin 1988: 136.

\(^\text{17}\) Ross, another proponent of the intuitionist interpretation, makes a similar point about the role of empeiria in Ross 1949: 86.

\(^\text{18}\) Irwin 1988: 136. In a similar vein, Michael Frede claims that “the relation between our perceptions and our knowledge of first principles, or whatever knowledge we have by reason [i.e., Frede’s translation of ‘nous’], is a natural, a causal, rather than epistemic, relation. Our knowledge of first principles is not epistemically, but only causally, based on perception” (1996: 172).
knowledge is epistemically basic. Hence, in the jargon of contemporary epistemology, the Intuitionist View offers a foundationalist account of essentialist knowledge.

Though the Intuitionist View is a traditional interpretation of Aristotle’s views, it has been subject to much criticism in recent decades, which has led commentators to look for alternative interpretations of Aristotle’s epistemology of essence. One such alternative is the Explanationist View. According to the Explanationist View, we come to know a kind’s essence by seeking out the causes (aitia) of its regular (i.e., necessary or for the most part) features until we reach some regular feature(s) of the kind which are explanatorily basic, i.e., which are not caused or explained by its other features and yet which cause or explain other regular features of it. Like the Intuitionist, the Explanationist presumes that we have prior empirical knowledge of the kind. In particular, the Explanationist presumes that we have prior empirical knowledge of the regular features of the kind. Unlike the Intuitionist, the Explanationist maintains that this prior knowledge is epistemically-relevant to our coming to know essences, for, according to the Explanationist, our judgements about which features of a kind are essential to it are justified by our judgement that these putative essential features explain why the kind has the regular features which we already know it has. L.A. Kosman, an early Explanationist, summarizes the view well when he writes, “Our ability or inability to use certain principles, to explain by them the phenomena with which we begin and thus to gain with them scientific understanding [epistēme] of these phenomena, constitute the criteria of adequacy

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20 Throughout this paper, I translate the Greek noun ‘aitia’ as ‘cause’ (rather than, e.g., ‘explanation’). I do this because, in the passages which will be of particular interest, Aristotle calls the middle term an ‘aitia’ but the middle term is not a proposition or collection of propositions, whereas an explanation is typically understood to relate propositions or facts. That being said, ‘cause’ here should be understood in a broad sense (which corresponds to our broad use of the word ‘because’), so as to include teleological causes, formal cause, efficient causes, and the sort of explanantia that feature in mathematical explanation, e.g., this triangle has interior angles equal to two right angles because it is a three-sided, closed plane figure.

for these principles” (Kosman 1973: 387). In other words, judgments about which features of something are essential to it are justified by reference to whether these features explain the other regular features which we know (by experience) belong to the kind.

Finally, in his recent book, *Aristotle on Knowledge and Learning*, David Bronstein has proposed a third, complex and innovative view which he calls the ‘Socratic View.’ According to this interpretation, Aristotle proposes three different methods by which we acquire knowledge of essences: induction, division, and demonstration (i.e., explanation). Each method is used to come to know the essence of a different type of definiendum. In order to clarify the view, we must review some of the distinctions Bronstein draws.

First, on the basis of *APo* II.1, *APo* II.2, and *APo* I.4, Bronstein argues that Aristotle draws a distinction between two types of entities, viz., attributes and subjects. According to Bronstein, the category of subject includes standard Aristotelian substances, e.g., man, horse, etc., and “substance-like” entities, e.g., triangle, unit, line, surface, etc. The difference between subjects and attributes lies in the fact that instances of attribute-kinds are “by nature such as to belong to a subject” whereas instances of subject-kinds are “by nature such as to be the subjects to which attributes belong without belonging to any subject (they are *Categories* primary substances).” While a distinction of this sort is a standard theme throughout much of the Aristotelian corpus, its relevance to the *Posterior Analytics* is controversial.

Second, Bronstein argues that Aristotle distinguishes between primary subject-kinds and subordinate subject-kinds (roughly, genera and species). Examples of primary subject kinds, Bronstein

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22 Bronstein 2016: 45. Bronstein refers to Marko Malink’s (2013: 160, fn.15) observation that mathematical terms like ‘line,’ ‘triangle,’ ‘unit,’ and ‘number’ seem to be treated as terms for substances in the *Analytics* (see p.45, fn. 12). Malink cites *APo* 1.5 27a20, where Aristotle assumes (perhaps just for the sake of an example) that all numbers are substances.

23 Bronstein 2016: 82.

24 Goldin (1996: 72-76) and Ross (1949: 633) also claim that Aristotle draws a distinction between substances (or substance-like) entities and attributes in the *APo*. By contrast, Bolton (2017) denies that there is an important distinction between subject-kinds and their attributes in the *APo*. 
suggests, include animal (in the science of zoology), unit or number (in the science of arithmetic), and point and line (in the science of geometry). Examples of subordinate subject kinds, Bronstein suggests, include three (in the science of arithmetic), triangle (in the science of geometry), and human being (in the science of zoology). According to Bronstein, primary subject kinds are distinguishable from subordinate subject kinds in the following ways: (A) the existence of the former is not demonstrable but instead assumed as a hypothesis in the relevant science, whereas the existence of the latter is demonstrable in the relevant science and (B) subordinate subject kinds are species which are ‘composed out of’ their respective primary subject kinds in the sense that their respective primary subject kinds (i.e., their genera) are parts of the species’ respective definitions (e.g., number is part of the definition of three, line is part of the definition of triangle, and animal is part of the definition of human being).

Together, these two distinctions carve out three distinct kinds of definienda: attributes, primary subject-kinds, and subordinate subject-kinds. According to the Socratic View, we first acquire knowledge of a primary subject-kind’s essential features by induction and then acquire knowledge of the subordinate subject-kinds within this primary subject-kind by division. After coming to know the essence of a subject-kind S, we are in a position to acquire knowledge of the essences of S’s explicable attributes in an Explanationist fashion, viz., by identifying the cause or explanation of S’s having those explicable attributes. Finally, we achieve a higher form of knowledge of S’s essence (which Bronstein identifies with the state which Aristotle calls ‘nous’ in APo) by tracing the causes of S’s possession of its explicable attributes all the way back to the essential features of S, thereby showing that the essential features identified earlier by division or induction ultimately explain all of S’s explicable attributes.

25 Ibid. 170.
26 Ibid.
27 Ibid. 171-173 and 175-177.
The core innovation of the Socratic View is its two-step approach, i.e., the idea that “we do not define a subject-kind by explaining its demonstrable attributes, as we do in the Explanationist Picture. Rather, explanation (and thus demonstration) is the way we transform our non-noetic knowledge of a subject-kind’s definition, which we previously discovered by different means [i.e., by induction or by division].” Elsewhere, Bronstein expresses this point as follows:

According to the Socratic Picture, by the time we construct the demonstrations [i.e., explanatory deductions] of the attributes of S, we already know what S’s essence is. By constructing the demonstrations we make the essence clear, in the sense that we clarify its role as the essence, as S’s explanatorily basic feature, that which explains its other necessary attributes…The key here is that the inquirer already knows which facts are the *explananda* and which are the indemonstrable principles; what she does not understand are all the explanatory connections among them.

As we shall see, this core innovation leads to a decisive philosophical problem for the view.

§2.3 A Map of What’s to Come

In what follows, I shall defend an Explanationist interpretation of Aristotle’s answer to the essentialist knowledge question. First, I will offer a philosophical objection against the Socratic and Intuitionist Views. To that end, I shall begin by examining Aristotle’s answer to the real definition question, i.e., the criterion he uses to distinguish essential features from merely necessary but non-essential features, and argue that Aristotle gives an explanationist answer: a kind’s essence consists in those of its necessary features which are explanatorily basic (§3). Next, I consider whether any of the three interpretations offer a reliable method for knowing which features of a kind satisfy that criterion, and I show that neither the Socratic nor the Intuitionist Views offers such a method (§4-5) but that, by contrast, the Explanationist View does offer such a method (§6). This establishes the philosophical superiority of the Explanationist View over the Socratic and Intuitionist View, given

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29 Ibid. 125-126. Bronstein labels his interpretation the ‘Socratic View’ because, according to Bronstein, “like Socrates, Aristotle thinks that we should first seek what a thing’s essence is and then seek its other attributes” (2016: 116; cf. *Meno* 71b). But, strikingly, Bronstein agrees that Aristotle thinks we can know that certain features characterize a kind by necessity or for the most part without knowing that kind’s essence (2016: 239-240). In this respect, Bronstein’s view seems definitively non-Socratic.
Aristotle’s theory of essence. It remains, however, to establish the exegetical superiority of an Explanationist interpretation over Socratic and Intuitionist interpretations. Rather than making a positive case for an Explanationist interpretation (a task taken up by many other Explanationists), I focus on showing on how the Explanationist View can be defended from five textual objections put forward by its opponents (§7).

§3.0 Aristotle’s Explanationist Theory of Essence

It is widely accepted that Aristotle is a real definition essentialist about kinds. He holds that not every necessary feature of a kind is essential to it; only some of the necessary features of a kind are parts of its essence or real definition. Many scholars, including my principle interlocutors, agree that Aristotle is not only a real definitional essentialist but also a non-primitivist about real definition. That is, he provides an account of what makes certain features of a kind part of its essence or real definition rather than mere necessary features of it. In this section, I examine Aristotle’s account of what makes certain feature essential to a kind, i.e., his answer to the real definition question. Put in broad terms, I shall argue that Aristotle holds an explanationist theory of essence, i.e., a theory of essence according to which, for all K and E, E is an essential feature of a kind K iff E is an explanatorily basic necessary feature of K, i.e., (a) necessarily, K is E (if K exists), (b) K’s being E is immediate, i.e., not explained by any other features of K, and (c) K’s being E is part of the explanation of (at least some of) K’s other, non-essential but necessary features.

§3.1: Scholarly Consensus

Many scholars, including proponents of the Intuitionist and Socratic interpretations of Aristotle’s epistemology of essence, agree that Aristotle offers an explanationist theory of essence. For example, David Bronstein, the proponent of the Socratic interpretation of Aristotle’s epistemology of essence, writes,

A definition of a subject-kind is a first principle. As such, it is explanatorily basic. If E is the essence of S, then E is part of the explanation of why S has all the other necessary attributes
(in itself accidents) that it has. S's being E, on the other hand, is not explained by anything else – the fact that S is E is indemonstrable.30

Proponents of the Explanationist interpretation of Aristotle’s epistemology of essence make similar claims. Thus, David Charles writes, “the essence is the one cause of all the kind’s derived necessary properties,”31 and Robert Bolton claims that a definition which specifies the essence

…is ‘an account of what a thing is’ which exhibits just the feature(s) of it which cannot be accounted for or demonstrated to belong to it by reference to other more basic features, but rather those by reference to which all of the explicable features of the thing are, ultimately, accounted for.32

Terry Irwin, a key proponents of the Intuitionist Interpretation, agrees that

…the intrinsic non-essential properties are those that belong to the subject because it has the essential properties it has. An account of what holds necessarily of a universal subject will derive some of the properties of the subject from others that explain them [viz., the essential properties].33

Similar interpretations of Aristotle’s theory of essence are put forward by Jonathan Barnes, Owen Goldin, Joan Kung, Michael Loux, and Marko Malink.34

The claim that there is a scholarly consensus here, however, needs some qualification. In particular, it must be noted that there is disagreement about whether the essence of a subject-kind plays the same kind of explanatory role as the essence of an attribute-kind. In the passage quoted above, for example, Bronstein restrict his claims to “subject-kinds,” i.e., kinds whose instances are

30 Bronstein 2016: 57; see also p.49, 106. I’ll say more about Bronstein’s notion of a ‘subject-kind’ below. Bronstein goes on to add that in the case of subject-kind, in addition to being the cause of the kind’s demonstrable attributes, the essence is also “the cause that makes S [i.e., the subject-kind] the very thing that it is” (57). This claim plays an important role in Bronstein’s interpretation APo 2.2 90a10-12, but it is not relevant to the arguments of this paper, so I set aside further discussion of it.

31 Charles 2000: 202-203; see also Charles 2010: 291, 295-296. Charles maintains that there must be only one such essential feature in order for the kind to be a non-accidental unity. Discussing the example of the kind thunder, he writes, “In the case of thunder, it is one unified type of phenomenon because there is one common (efficient) cause which explains the presence of its necessary properties. (Had there been several unconnected causes of necessary distinct properties, thunder would not have been a unified kind…” (2010: 291). I am attracted to the thesis that non-accidental unities have only one essential feature, but since this claim cannot be easily defended on either philosophical or exegetical grounds, I prefer to remain neutral on this point for the purposes of this paper.


subjects to which attributes belong but which do not themselves belong to anything else (e.g., *human* is a subject-kind: individual humans are subjects to which attributes belong but which do not themselves belong to other subjects). While Bronstein holds that the essences of subject-kinds are the *explanatorily basic* necessary features of those kinds, he provides an alternative account of the essences of such kinds.\(^{35}\) By contrast, Charles, Bolton, and Lennox, proponents of the Explanationist interpretation of Aristotle’s epistemology of essence, claim that the *all kinds* are such that their essences just are their explanatorily basic necessary features. In what follows, I will ignore this complication since it does not affect the main arguments of this paper.

§3.2: Textual Grounds

In Aristotle’s terms, a kind’s essence is what we aim to make clear when we give a definition *(horismos)* or account *(logos)* of it.\(^{36}\) In fact, the Latin term ‘*essentia,*’ from which our English word ‘essence’ is taken, translates Aristotle’s phrase ‘*to ti esti,*’ *(what it is)* or ‘*to ti ēn einai,*’ *(what it is for it to be).* Some care must be taken here: not all of what a kind is, i.e., not all of its features or properties, are elements of its essence, nor does every putative definition of a kind succeed in specifying the complete essence of its definiendum. Which of a kind’s features, then, are part of its essence?

It’s uncontroversial that Aristotle holds that the essential features of a kind must belong to every instance of the kind. In other words, the essential features of a kind are necessary features of the kind. Confirmation for this can be found in *APo* I.4. In this chapter of *APo,* Aristotle distinguishes four ways in which one thing may be said to belong *in itself* *(kath hauto)* to something else. Here is Aristotle’s account of the first two types of *in itself* relationship:

\[P \text{ belongs } \textit{in itself} \text{ to } S \text{ if and only if } P \text{ is in the essence (}\textit{en to ti esti}) \text{ of } S.\]

\[P \text{ belongs } \textit{in itself} \text{ to } S \text{ if and only if } S \text{ is in the essence (}\textit{en to ti esti}) \text{ of } P.\]

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\(^{35}\) See Bronstein 2016: 45-46, s96-107, 131-143.

\(^{36}\) “Clearly, then, definition is the formula of the essence…” *(Metaph. VII.6 1031a12); “A definition is a phrase *(logos)* signifying a thing’s essence” *(Top. I.5 101b38).* See also *Top. VII.5 154a31-2; Metaph. VII.5 1031a11-12; Metaph. VII.4 1030a6-7, 1030b5-7; and Metaph. VIII.1 1042a17-21.*
Short after introducing these types of *in itself* predication, Aristotle tell us that “Whatever...is said to belong to things in themselves, i.e., as belonging in the essence of the thing predicated *[in itself]* or in the essence of the subject of which it is predicated *[in itself]*, holds both because of themselves (δι’ hauto) and from necessity (ek anangkēs)” (73b16-19). 37 Hence, we can conclude that

(a) for all P and S, if P is in the essence of S, then necessarily, if S exists, P belongs to S; and
(b) for all P and S, if S is in the essence of P, then necessarily, if P exists, P belongs to S.

In short, the essential features of a kind are necessary features of that kind. 38

It’s likewise uncontroversial that Aristotle makes a further distinction between essential features and merely necessary features. That Aristotle countenances necessary features which are non-essential is made clear by his discussion of *propria* (*idia*) and *in itself accidents* (*kath’ hauto sumbebekota*). For example, in *Top* I.5, Aristotle introduces the concept of an *idion* as follows:

A property (*idion*) is something which does not indicate the essence of a thing, but yet belongs to that thing alone, and is predicated convertibly of it. Thus it is a property of man to be capable of learning grammar; for if he is a man, then he is capable of learning grammar, and if he is capable of learning grammar, he is a man. For no one calls anything a property which may belong to something else.... (102a18-24).

Something has a kind’s *idia* if and only if it is a member of that kind, but nonetheless the *idia* are not essential to it. Consider also Aristotle’s discussion of *in itself accidents*:

‘Accident’ (*sumbebekoia*) has also another meaning, i.e., what attaches to each thing in virtue of itself but is not in its essence (*huparchei bekato kath’ hauto me en tē ousia*), as having its angles equal to two right angles attaches to the triangle. And accidents of this sort may be eternal (*aidia*). (Metaph. V.30 1025a30-34). 39

2R (i.e., the property of having interior angles equal to two right angles) is a necessary but non-essential property of triangles. Here we have another example of Aristotle identifying some features

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37 See also *APo* I.6 74b6-8.
38 Barnes (1994: 117, 126), Malink (2013: 124), and McKirahan (1992: 83-84) agree that all *in itself* and *in itself* *predications are necessary*. Barnes worries that about the necessity of *in itself* *predication*, but his worries can be avoided if one recognizes that, where *P* belongs in *in itself* to *S*, what is necessary is that *P* belongs to *S* if *P* exists.
39 For other references to *in itself accidents*, see *APo* 1.7 75b1; 1.9 76a4-9; 1.10 76b6-7, b13-15; 1.12 83b19-20; and 2.13, 96b20, b23-24. I do not attempt to address here the question of how *in itself accidents* (*kath’ hauto sumbebekota*) are related to *propria* (*idia*).
of a kind as necessary but non-essential, again implying that not all of a kind’s necessary attributes are essential to it.\textsuperscript{40} Hence, it is safe to conclude that, for Aristotle, not all of a kind’s necessary features are essential to it. What then distinguishes essential necessary features from non-essential necessary features?

A number of commentators maintain that a kind’s in itself accidents can be distinguished from essential features by the fact that in itself accidents belong to the kind (partially) in virtue of its essential features but not vice-versa.\textsuperscript{41} Such a thesis can be extracted from the discussion of \textit{APo I.22}. There Aristotle writes,

\begin{quote}
When one thing is predicated of one, either it is predicated in the essence (\textit{en tō ti estin}) or it says that the subject has some quality or quantity or relation or is doing something or undergoing something or is at some place of time. Again, the things signifying a substance (\textit{ousian}) signify of what they are predicated just what is that thing or just what is a particular sort of it. But the things which do not signify a substance but are said of some other underlying subject which is neither just what is that thing nor just what is a particular sort of it are accidental, e.g., white of man… But the things that do not signify a substance must be predicated of some underlying subject, and there cannot be anything white [or F, for any other non-substantial predicates F] which is white [or F] not by being something else (\textit{kai mé einai ti leukon bo ouk heteron ti on leukon estin}). (83a25-29, a30-33).
\end{quote}

Here Aristotle maintains that attributes which are not part of the essence of a subject can only belong to that subject “being something else,” i.e., through it having its essential features. In other words, any non-essential attribute F belongs to a subject S at least partially in virtue of S being E, where E is the essence of S. Later on in this chapter, Aristotle identifies these non-essential attributes as “accidents” (\textit{sumbēbekota}) and allows that some of these accidents are in itself accidents: “For they are all accidents, though some in themselves and some in another way… (\textit{sumbēbekota gar esti panta, alla ta men kath’ hauto, ta de kath’ heteron tropon})” (83b19-21). Hence, in itself

\textsuperscript{40} See also \textit{Top. IV.1} 120b21-29: “Secondly, see whether it is predicated not in the essence (\textit{en tō ti esti}), but as an accident (\textit{all’ hōs sumbēbekos}), as white is predicated of snow, or self-moving of the soul. For snow is not just what is white, and therefore white is not the genus of snow, nor is the soul just what is moving – its motion is an accident of it, as it often is of an animal to walk or to be walking. Moreover, moving does not seem to indicate what something is, but rather a state of doing or of undergoing. Likewise, also, white; for it indicates not what snow is but a certain quality of it. Hence, neither of them is predicated in what it is.”

\textsuperscript{41} See Bronstein (2016: 47), Malink (2013: 125-126), Ross (1949: 577), and Alexander of Aphrodisias, \textit{In Top. 50.6-51.5}. 
accidents are necessary attributes which belong to their subjects at least partially in virtue of those subjects’ essences.\textsuperscript{42}

Once this interpretation of in itself accidents is granted, it’s natural to adopt an explanationist interpretation of Aristotle’s theory of essence. Given that essential features are distinguished from non-essential but necessary features (in itself accidents) by the fact that the latter, unlike the former, belong to their subjects at least partially in virtue of those subjects “being something else,” we can conclude that the essential features of a subject are its explanatorily basic necessary features, i.e., necessary features which are such that (a) nothing else explains why the subject has them and (b) the subject’s having them explains why it has its non-essential but necessary features, viz., its in itself accidents.

What other textual support can be marshalled favor of this interpretation? Another pillar for the view is Aristotle’s claim that definitions, i.e., accounts which state the essences of things, are among the indemonstrable and immediate principles of the sciences. In \textit{APo} I.2, Aristotle defines scientific knowledge (\textit{epistēmē}) as follows:

We think we scientifically know something simpliciter (\textit{epistasthai haplōs}) (and not in the sophistical way or incidentally) when we think we know (a) of the cause (\textit{aitia}) because of which it is that it is the cause and (b) also that it is not possible for it to be otherwise. It is plain, then, that scientific knowledge is something of this sort…Now whether there is also another type of scientific knowledge we shall say later; but we say now that we do know through demonstration (\textit{di’ apodeikeōs}). By demonstration I mean a scientific deduction; and by scientific I mean one in virtue of which, by having it, we scientifically know something. (71b10-19).

\textsuperscript{42} The thesis that in itself accidents belong to their subjects in virtue of those subjects’ essence is also suggested by the following passage from \textit{APo} I.9: “We understand a thing (\textit{hekaston}) non-accidentally when we know it in virtue of the principles of that thing to which it has been said to belong, as that thing – e.g., we understand having angles equal to two right angles when we know it in virtue of the principles of that thing to which it has been said to belong in itself” (76a4-8, modified translation). Here Aristotle does not use the term ‘in itself accident’ but the example, having (interior) angles equal to two right angles, is an example of an in itself accident. If we generalize (as the text invites us to do), the result is that all in itself accidents belong to their subjects (partially) in virtue of the principles, i.e., the essential features, of those subjects.
After providing this definition of scientific knowledge (epistēmē) and its connection to demonstration, Aristotle lays out six conditions which (at least one of) the premises in a scientific deduction must satisfy:

…it is necessary for demonstrative scientific knowledge in particular to depend on things which are true and primitive (prōton) and immediate (ameson) and better known than and prior to and explanatory of the conclusion. (71b20-22).

Aristotle goes on to describe two types of primitive propositions which can serve as the principles of a demonstration: theses and axioms. The former type is itself divided into two subtypes, definitions and hypotheses, yielding three types of principles in all:

Depending on things that are primitive is depending on proper principles (archai oikeiai); for I call the same thing primitive and a principle. A principle of a demonstration is an immediate proposition, and an immediate proposition is one to which there is no prior...An immediate deductive principle I call a thesis (thesis) if one cannot prove it but it is not necessary for anyone who is to learn anything to grasp it; and one which it is necessary for anyone who is going to learn anything whatever to grasp, I call an axiom (aksiōma)...A thesis which assumes either of the parts of a contradiction – i.e., I mean, that something is or that something is not – I call a hypothesis (hypothesis); one without this, a definition (horismos). For a definition is a thesis (for the arithmetician posits that a unit is what is quantitatively indivisible) but not a hypothesis (for what a unit is (to ti esti monas) and that a unit is (to einai monada) are not the same). (72a5-8, a14-17, a17-24).

Since these definitional principles specify their definienda’s essences, it follows that the essence of something (a) belongs to it immediately, i.e., not in virtue of anything else and (b) is suitable to serve as an explanatory middle term in a demonstration that explains why the definiendum has certain other necessary features (e.g., in itself accidents).44

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43 In APo I.10, Aristotle identifies the same three types of principles and contrasts axioms with theses (which include definitions and hypotheses) by noting that the former are common (koina) to several demonstrative sciences (apodeiktikai epistēmai) or kinds (genera) whereas the latter are proper (idia) to specific demonstrative sciences or kinds. See especially 76a37-b2.

44 Some care is required here since Aristotle elsewhere distinguishes between three types of definitions: (1) an indemonstrable account of the definiendum’s essence, (2) what he calls “a demonstration differing in position,” and (3) the conclusion of such a demonstration (see APo I.8 75b30-32 and II.10 94a11-19). These texts, especially the passage from APo I.8, make it clear that the definitions which serve as principles (and in particular as theses of a certain kind) are of the first type. For further discussion of the immediacy of definitional principles, see APo I.3 72b19-24.
Support for the explanationist interpretation of Aristotle’s theory of essence can also be found outside the *APo*. For example, in *DA I.1*, Aristotle writes,

(a) It seems that not only is knowing the essence (*to ti esti gnōnai*) useful for theorizing about the causes (*tas aitias*) of the [in itself] accidents (*ta sumbebēkota*) of substances (just as in mathematics [knowing] what straight and curved are, or what line and surface are, is [useful] for discerning how many right [angles] the [interior] angles of a triangle are equal to), but also conversely, [knowing] the [in itself] accidents contributes a great part (*sumballetai mega meros*) to knowing the essence [of their subject] (*pros to eidenai to ti estin*). (b) For whenever we are able to give an account in conformity to our experience of all or most of the [in itself] accidents, at that time we will be able to speak best about the substance (*ousia*). (c) For in every demonstration the essence is a principle (*archē*). Hence, whichever definitions are not such that [our] knowing (*gnōrizein*) the [in itself] accidents (*ta sumbebēkota*) follows [from knowing them, i.e., the definitions] but instead do not even make it easy [for us] to form a guess about these [in itself accidents], it’s clear that all [these definitions] are stated in a dialectical and empty manner. (402b16-403a2, my translation).

Here Aristotle tells us that “in every demonstration the essence is a principle.” The context makes it clear that the essence of a substance is a principle or cause of the substance’s *in itself accidents*.

Moreover, (b) indicates that “we will be able to speak best about the substance,” i.e., the essence of the substance, when we know its in itself accidents and can explain why, given its essence, the substance has these accidents. In (c), Aristotle confirms that a definition or specification of the substance’s essence which fails to enable us to explain its in itself accidents is “dialectical and empty.” In fact, in *DA I.4*, Aristotle criticizes his predecessors’ definitions of soul precisely on this basis:

It is impossible not only that these characters should give the definition of soul – it is impossible that they should even be incidental to it! The point is clear if the attempt be made to start from this account [of the soul] and explain from it the affections and actions of the soul, e.g., reasoning, sensation, pleasure, pain, etc. For, to repeat what we have said earlier [in the last line of the passage quoted above], it is not easy even to make a guess based on this account. (409b12-18).

The upshot is that a successful specification of the soul’s essence will be such that the “affections and actions” of the soul, i.e., its *in itself accidents*, can be explained by reference that specification of the soul’s essence. Hence, this text from Aristotle’s *DA* also supports the claim that the essence of a
substance can be distinguished by its merely necessary features by the fact that the former explains the latter but not vice-versa.45

I conclude, then, that there is strong textual support for the claim that the essential features of a kind K are *explanatorily basic* necessary features of K, i.e., (a) necessary features of K which (b) belong to K immediately, i.e., not in virtue of anything else and (c) explain (at least some of) K’s other, non-essential but necessary features.

§4.0 A Decisive Problem for the Socratic View

I have now established the first premise in my argument against the Socratic View:

(1) Aristotle holds a real definition theory of essence according to which the essence of a kind consists in its explanatorily basic necessary feature(s).

Now that we know what makes something part of essence of a kind on Aristotle’s view, we can investigate whether the Socratic View’s offers a reliable way to distinguish which features of a kind meet this criterion. If we find that it does not, then it will fail to offer a reliable method for uncovering a kind’s essential features, given

(2) If a kind’s essence consists in those features of it which are F, then a method of discovering which of its features are essential is reliable iff the method can be used to reliably distinguish those of its features which are F from those which are not.

Before investigating the Socratic View, I shall first briefly say something in defense of (2).

Let’s start with a more general principle: it seems quite plausible that, in general, a method of discovering which things are F is reliable iff it can be used to reliably distinguish things which are F from things which are not F. For example, one’s method of discovering which things are red is reliable iff it can be used to reliably distinguish red things from non-red things. Note that this does not require that one be able to “directly” track which things are F. If a person is color-blind, she may have a reliable method for discovering which things are red that does not involve directly

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45 For further evidence outside the *APo* that Aristotle held this theory of essence, see *GA* 5.7 78813-16: “The principles, though small in bulk, are great in power. This, indeed, is what it is to be a principle (*to archēn eisai*) – namely to be a cause (*aitia*) of many things, while nothing else is a more ultimate (*anōthēn*) [cause of it]” (my translation).
observing the redness of the objects (e.g., she may rely on a reliable, non-color-blind friend). In this case, her method “indirectly” reliably tracks which objects are red and hence conforms to this general principle about reliability.

Given this clarification, it’s hard to see how this general principle could be wrong. Consider the left-to-right direction of the biconditional: if one’s method of discovering which things are F is reliable, then surely one can reliably distinguish which things are red. How could one’s method be reliable if this were not so? Next, consider the left-to-right direction of the biconditional: if one can use a method to reliably distinguish things that are F from those that are not, then surely one has a reliable method of discovering which things are F. Just give the person an object and she can use her method to reliably say whether it is F or not. What else could be required for the method to be a reliable way of discovering which things are F? In short, unless a detractor can give us some positive reason to doubt it, this general principle seems well-motivated. But if this general principle is well-motivated, then so is (2), for (2) is just a particular instance of the more general principle. I conclude that (2) is a well-motivated premise.

Given this, we must now consider whether the Socratic View offers way to reliably distinguish the explanatorily basic features of a kind from its non-explanatorily basic features. I shall argue next that

(3) There is no reason to think that the methods of division and induction (as the Socratic View understands them) can be used to reliably distinguish those features of a kind which are explanatorily basic from those which are not.

Given (1), (2), and (3), we can draw the following conclusion:

(4) Hence, there is no reason to think the methods recommended by the Socratic View (viz., division and induction) are reliable methods for discovering which features of a kind are essential to it (given the theory of essence described in (1) above).

Without further ado then, let us turn to the defense of (3).
The Socratic View recommends two methods for discovering the essences of subject-kinds: division and induction. In particular, it recommends division for discovering the essences of subordinate subject-kinds (i.e., the species of a science) and induction for discovering the essences of primary subject-kinds (i.e., the highest genus of a science). My objection does not turn on Bronstein’s distinction between subordinate and primary subject-kinds, so we needn’t discuss the distinction in further detail. Instead, I will first summarize the core details of Bronstein’s account of the methods of division and induction and then illustrate why these methods cannot be used to reliably distinguish those features which are explanatorily basic from those which are not.

§4.1 Bronstein on Division and Induction

In general, division (diariesis) is a method used to define species of a wider genus. The method involves starting with a genus (a broad kind) and then repeatedly dividing it into narrower and narrower species (more and more specific kinds), by selecting attributes (known as ‘differentiae’) which are possessed by some of but not all of the members of the kind being divided, until a collection of genus and differentiae is reached which is coextensive with the species one aims to define. The resulting definition will have the following form: $S$ is $G D_1 … D_n$, where ‘$G$’ refers to the genus and ‘$D_1$’…’$D_n$’ refer to the differentiae selected to distinguish $S$ from other species of $G$. This general method was well-known to Academic philosophers and can be found on display in a number of Plato’s later dialogues.46

On Bronstein’s interpretation, Aristotle refines this general method of division by specifying five rules47 to which any successful division must adhere:

(D1) \textit{D Attribute}: all the attributes in a definition by division must be \textit{D Attributes}, i.e., attributes which (i) do not belong to anything outside the definiendum’s genus and

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46 See, for example, Sophist 221c-232a and 264e-268d; Statesman 258b-267c; and Philebus 16c-17a.
47 Bronstein does not organize the criteria for a successful division into these five rules. Instead, the five rules are my distillation of his lengthy discussion.
(ii) belong to at least one other species of the definiendum’s genus besides the definiendum.\(^{48}\)

\[(D2)\] *Genuine Way:* all the differentiae in a definition by division must “represent a genuine way of being the kind (genus or divisible species).”\(^ {49}\)

\[(D3)\] *Exhaustive Division:* every division in a definition by division must be *exhaustive* (“\(D_1/D_2\) is an exhaustive division of \(x\) if and only if all \(x\)'s are either \(D_1\) or \(D_2\) (and some \(x\)'s are \(D_1\) and some are \(D_2\) and none are both)).”\(^{50}\)

\[(D4)\] *Proper Order:* at each genus or divisible species reached during the process, there is “only one correct way of dividing it exhaustively.”\(^ {51}\) In other words, the differentiae in the final definition must be *properly ordered*, having been taken at each step by the one correct way of dividing the genus or divisible-species.\(^ {52}\)

\[(D5)\] *First Collection:* the collection of genus and differentiae must not only be (collectively) coextensive with the definiendum but the *first* coextensive collection to be reached when dividing in the proper order.\(^ {53}\)

The resulting definition \((GD_1…D_n)\), according to Bronstein, will include all and only those features which are essential to the definiendum, for “by making properly ordered exhaustive divisions with genuine differentiae (which are also D attributes), the definer ensures that no essential attributes are omitted and no non-essential ones are illicitly introduced.”\(^ {54}\) Notably, Bronstein insists that “which differentiae are genuine (and D attributes), which divisions are exhaustive, and how they are properly ordered are empirical matters to be determined by the hard work of inquiry.”\(^ {55}\) Elsewhere, he similarly remarks that the question as to which way is the “proper” way to order the differentiae

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\(^{48}\) Bronstein 2016: 200. For Bronstein’s discussion of the D Attribute Rule, see pp.201ff. Note that the genus itself is always a D Attribute since it can be predicated of all of its species. One implication of this is that every definition by division must include at least two differentiae, a claim which *prima facie* conflicts with *Metaph.* VII.12’s discussion of a “final differentia” which is coextensive with the definiendum. Bronstein’s textual basis for attributing this rule to Aristotle is *APo* II.13 96a24-b1.

\(^{49}\) Ibid. 210. See also pp. 218 and 219. Bronstein does not mention what the textual basis for this restriction is, but he is probably thinking of *APo* II.13 97a11-14 and 97a23-28. See also the discussion of division in *Pf.* I.1.

\(^{50}\) Ibid. 206. For the textual basis for attributing this claim to Aristotle, see *APo* II.13 96b36-97a6.

\(^{51}\) Ibid. 208.

\(^{52}\) Ibid. 207-210. For the textual basis for attributing this claim to Aristotle, see *APo* II.13 96b30-36, 97a25-26, and 97a28-34.

\(^{53}\) Ibid. 201, 207. For the textual basis for attributing this claim to Aristotle, see *APo* II.13 96a32-34, 97a26, and 97a35-97b7.

\(^{54}\) Ibid. 218.

\(^{55}\) Ibid.
can only be answered from within the relevant science and that “there are no abstract, meta-
scientific principles, or norms of inquiry.”\(^5\)

Setting aside division, let us consider next Bronstein’s discussion of type of induction his 
interpretation says can be used to come to know the essences of primary subject-kinds. In general, 
induction is a method used to infer things about a whole class of objects based on observing 
representative instances of that class. According to Bronstein, Aristotle recommends the use of a 
specific inductive procedure for discovering the essence of a genus. Here is Bronstein’s account of 
that procedure:

**Step 1:** Collect several particular members of an indivisible species of G, S\(_1\), and work out 
what attributes they all have in common qua S\(_1\). Let’s say those attributes are C\(_1\) and C\(_2\).

**Step 2:** Collect several particular members of a different indivisible species of G, S\(_2\), and 
work out what they all have in common qua S\(_2\): C\(_3\) and C\(_4\).

**Step 3:** Repeat Step 2 for every indivisible species of G. The result of Steps 1–3 is a pool of 
attributes each of which belongs universally to a single indivisible species of G: C\(_1\), C\(_2\), C\(_3\), C\(_4\), 
etc.

**Step 4:** Work out what (if anything) C\(_1\), C\(_2\), C\(_3\), C\(_4\), etc. have in common. Call it E. E is the 
essence of G [only if E is co-extensive with G]. (If C\(_1\), C\(_2\), C\(_3\), C\(_4\), etc. do not have anything 
in common, then G is not a single genus and ‘G’ is used ambiguously. In that case the two 
or more genera of which S\(_1\), S\(_2\), etc. are species must be defined independently, via Steps 1–4).\(^7\)

For example, Bronstein suggests that to find the essence of the genus *animal*, the inquirer must first 
study what the members of individual species of animal have in common, e.g., what individual 
horses have in common, what individual cows have in common, etc. Then, with a collection of 
attributes for each indivisible species in hand, she picks all and only the attributes which are in every 
collection, e.g., *substance capable of perception*. The resulting collection of attributes will be coextensive

\(^5\) Ibid. 209.
\(^7\) Ibid. 220. The parenthetical ‘only if E is co-extensive with G’ is added by Bronstein on p.220, fn 65. The textual basis 
for attributing this sort of procedure to Aristotle is *APo* II.13 97b7-15.
with the genus; in Bronstein’s words, “‘substance capable of perception’ signifies the essence of the genus animal only if all and only individual animals are substances capable of perception.”

§4.2 The Problem

Now for the problem: in his discussion of division and induction, Bronstein offers us no reason to think that these methods can be used to reliably distinguish a kind’s explanatorily basic necessary features from those which are merely necessary. To see this, first note that neither method is designed to “directly” track which features of the kind are explanatorily basic, for neither method explicitly restricts its definitions so as to include only explanatorily basic attributes. Second, Bronstein has offered us no reason to think that these methods can “indirectly” track which features of the kind are explanatorily basic. Let’s consider this point in more detail, examining each method in turn.

Bronstein’s rules for division do not succeed in describing a method which can be used to either “directly” or “indirectly” reliably distinguish features which are explanatorily basic from those that are not. Let’s take each rule in turn. First, we have no reason to believe that the D Attribute restriction reliably tracks explanatorily basicness (a feature can (i) not belong to any subjects outside the genus and (ii) belong to more than one species within the genus without being explanatorily basic, e.g., the attribute having hair meets this requirement (in the genus animal) but is presumably not an explanatorily basic attribute of any species of animal). Likewise, the Exhaustive Division restriction offers no help (e.g., has hair/does not have hair or has hair/has scales/etc. is an exhaustive division of animal and yet neither attribute in this division is explanatorily basic). Third, while the First Collection restriction may help with blocking extra non-explanatorily basic attributes from

58 Ibid. 221. If species also belong in the extension of their genus, as some interpreters think (e.g., Malink 2013), then Bronstein should have said ‘…only if all and only individual animals and their species are substances capable of perception.’

59 Though they were writing before Bronstein developed his innovative Socratic View, my objection to Bronstein’s view was anticipated by Pellegrin & Bolton (1993), Charles (2000: 225), and, to some extent, Barnes (2002/1993: 240-242), each of whom raises the concern that division does not seem to be right method for identifying explanatorily basic attributes.
getting into the definition, it does not help ensure that the attributes included in the “first collection” are explanatorily basic unless the Proper Order restriction succeeds in limiting eligible attributes to those that are explanatorily basic. Fourth, the Proper Order restriction succeeds in this way only if the “correct way” of dividing the genus or divisible species at each step tracks explanatory basicness, but if this were so, then this criterion for a correct division – viz., the differentiae must be explanatorily basic features of the kind – would be an “abstract, meta-scientific principle or norm of inquiry” which is not discipline specific, contrary to Bronstein’s claim that there are no such principles or norms. Even if we set aside this remark about no “abstract, meta-scientific principle or norm of inquiry” as a mistake, it remains true that the method of division itself doesn’t tell us what the “correct way” of dividing the genus or divisible species is; instead, this is determined by an independent method. So, if one did have an independent method for determining the “correct way” of dividing and this way tracked which features are explanatorily basic, then the method of division would be superfluous: one would already have an independent method of finding out which attributes were explanatorily basic and hence essential. Fifth, this same worry applies to the Genuine Way restriction: either being “a genuine way of being the kind” does not co-vary with explanatory basicness, in which case genuineness cannot serve as a way of reliably tracking explanatory basicness, or it does co-vary, in which case division would be superfluous for the same reasons just noted above. In short, division cannot be used as a reliable method (except superfluously in conjunction with an already reliable method) for discovering which features are explanatorily basic.

Here is an example which illustrates this problem. Bronstein offers the following definition of three as an example of a definition reached through the method of division: three is (G) a number which is (D₁) odd, (D₂) prime, and (D₃) prime* (i.e., not the sum of positive integers, excluding one).⁶⁰ Although Bronstein raises some questions as to how we know this is the proper way of

⁶⁰ Bronstein 2016: 201. Bronstein gets this definition of three from Aristotle’s discussion in *APo*. II.13 96a24-96b14.
ordering the differentiae, he appears to endorse this definition as a correct application of the method of division.\(^\text{61}\) Indeed, it definitely satisfies the D Attribute and Exhaustive Division restrictions, and it satisfies the other restrictions if these differentiae are properly ordered and genuine ways of being the kind. But though each of these differentiae are necessary features of three, none of them seems to an explanatorily basic feature. After all, one can deduce that three is odd, prime, and prime* from a seemingly more basic feature of three, viz., three’s being 1+1+1.\(^\text{62}\) For example, three is odd because it is not divisible by two, and three is not divisible by two because it is 1+1+1. Since similar explanations can be given for why three is prime and prime*, it is doubtful that these are explanatorily basic features either. In short, this definition of three, which is reached by an apparently correct use of the method of division, is not a true account of three’s essence (assuming that three’s essence consists in its explanatorily basic feature(s)). Finally, while it is open to Bronstein to conclude that odd, prime, and prime* are either not “genuine ways of being” a number or not “correct ways of dividing” number, this sort of response nevertheless concedes that the method of division cannot be used without an independent method which itself can be used to distinguish which attributes are explanatorily basic (and hence eligible to be used in a correct definition by division) from those that are not. The need for this independent method, which itself can be used to discover which attributes are explanatorily basic and hence essential, makes division superfluous with respect to the task of finding out which attributes are essential, i.e., explanatorily basic.

A very similar objection applies to the method of induction recommended by the Socratic View. Recall that though the Socratic View recommends division as the way to acquire knowledge

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\(^{61}\) Ibid. 208-210. This is to be contrasted with Aristotle’s proposed definition (by division) of human being as two-footed tame animal, which Bronstein takes to be a toy example rather than a serious attempt to state the essence of a human being (see p.205, fn.46).

\(^{62}\) Pellegrin & Bolton makes a similar claim in Pellegrin & Bolton 1993. As Pellegrin & Bolton note, the claim that three is essentially 1+1+1 is suggested by the claim in Metaph. M.6 that “mathematical number consists of undifferentiated units” (1081a19-20).
of the essences of species or “subordinate subject-kinds”, it recommends induction as the way to acquire knowledge of the essences of genera or “primary subject-kinds.” Like the method of division, induction, including Bronstein’s special form of induction, does not itself provide any way of distinguishing explanatorily basic necessary attributes from merely necessary attributes.

Bronstein’s inductive procedure only distinguishes between a genus’s necessary attributes (i.e., attributes which belong to all its species and hence to all the members of its species) and non-necessary attributes. Hence, if a genus happens to have any attributes which are necessary but not explanatorily basic, Bronstein’s inductive method will nonetheless include them in the definition of that genus. For example, Aristotle believes that all animals have both a sensory capacity and an appetitive capacity. Hence, both *having a sensory capacity* and *having an appetitive capacity* are necessary attributes of animals. Nonetheless, Aristotle thinks that one’s sensory capacity is explanatorily more basic than one’s appetitive capacity: animals are capable of having desires because they are capable of sensing pleasure and pain. If this is right, then a proper account of the essence of animal should not include the attribute *having an appetitive capacity*, since this is a demonstrable attribute, explicable in terms of the more basic attribute of *having a sensory capacity*. Yet, if we apply Bronstein’s inductive procedure, *having an appetitive capacity* will be put into the definition of animal, since, *ex hypothesi*, it is a necessary attribute of animal, i.e., all species of animal and all members of the species of animal have an appetitive capacity.

Such is my defense of the third premise of my objection to the Socratic View:

(3) There is no reason to think that division and induction (as understood by the Socratic View) can be used to reliably distinguish those features which are explanatorily basic from those which are not.

63 See *DA* II.3 414b1-15.
64 Though Bayer’s account of induction differs somewhat from Bronstein’s, he points to a similar problem for an inductive route to essences: “Induction cannot discover principles because it cannot distinguish between what is ultimately explanatory and the properties explained. Recall that induction helps us to learn about humanity by shedding the incidental attributes of individual people so that only those attributes shared by all humans remain. But this leaves us with attributes coextensive with humanity…Induction gives us no way to choose which is fundamental – which of these explains the others. Thus it cannot tell us *what a human being ultimately is*” (Bayer 1997: 132; see also 136).
Putting (3) together with (1) and (2), we have established our conclusion:

(4) Hence, there is no reason to think the methods recommended by the Socratic View (viz., division and induction) are reliable methods for discovering which features of a kind are essential to it (given the theory of essence described in (1) above).

It is worth noting that Aristotle himself raises very similar worries about the possibility of using division or induction to discover essences. Let’s first consider his remarks about induction. In *APo.* II.7, he writes, “How then can the person who is trying to define prove the essence or definition?...nor can he show inductively by enumeration of manifest particular instances that every case is like this, because none is otherwise; for this does not prove what the subject is, but the fact that it is or is not” (92a34-35, a37-b1). In other words, at best induction can be used to reliably infer that the definiendum has certain attributes by necessity, but it doesn’t follow that these attributes are therefore essential to the definiendum. Because the essential attributes of a subject-kind must be not merely necessary for it but also explanatorily basic, induction cannot be used to reliably pick out the essential ones from the merely necessary ones.

Likewise, concerning division, Aristotle writes in *APo.* II.5,

It is quite possible that the whole expression [i.e., definition reached by division] should be truly predicable of man, and yet not exhibit the essence or essential nature of man. Besides, what is there to prevent the division from adding something, or omitting something, or missing out a step in the definition of the real nature? (91b25-28).

Here Aristotle raises an objection akin to that raised above: there is no reason to think that the attributes selected in the division will be all and only those which are essential, given that the method offers no way of reliably distinguishing explanatorily basic from non-explanatorily basic attributes. Interestingly, Aristotle considers the reply that this difficulty can be “dealt with by (a) taking at each stage only elements in the essence, (b) dividing consecutively, always postulating the first differentia,

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65 It's not even clear that induction can be used to reliably infer that the definiendum has certain attributes by necessity, i.e., in all possible cases. One might think that, at best, it can be used to reliably infer that the definiendum has certain attributes in all or most actual cases.
and (c) leaving out nothing” (91b28-31). Note that these rules for a successful definition by division are the same as those discussed in *APo* II.13, the rules upon which Bronstein bases his account. Note further, that even after introducing these rules, Aristotle remarks that at least one problem remains: the problem is that one cannot just stipulate that the attributes selected in one’s division are essential, and yet division does just this. One must provide some reason for taking selected attributes to be essential, for at each stage one is entitled to ask *why* these attributes are essential:

For just as in the case of conclusions without middle terms if someone says that if these are the case it is necessary that *this* is the case, it is possible to ask why; so too this is possible in the case of definitions by division. What is man? An animal mortal, footed, two-footed, wingless. Why *is this part of the essence* (at each additional posit)? (92b36-92a2).

In order to answer this challenge, one must first provide an account of what makes an attributes essential (e.g., it is explanatorily basic) and then offer justification for taking certain attributes to satisfy that account. This is precisely what the Explanationist View offers.

§5. A Similar Problem for the Intuitionist View

The basic idea behind my argument against the Socratic View is that in order to answer the essentialist knowledge question, one must first answer the real definition question, i.e., one must specify the criterion C which distinguishes features which are a part of a thing’s essence from those that are mere necessary features of it. After that, one must look for a method which can be used to reliably track which features are C and hence part of the definiendum’s essence. If we don’t figure out what C is first, we run the risk of postulating a method which does not reliably track which features are C and hence which does not reliably track which features are essential.

We have seen that for Aristotle the relevant criterion is *explanatory basicness*: a feature is essential if and only if it is necessary and explanatorily basic. Observing this fact provided a way to see why the methods recommended by the Socratic View, viz., division and induction, cannot be used to reliably figure out which features of a subject-kind S are essential to it. This observation also
paves the way for a more effective objection to the Intuitionist View than the standard objections found in the literature.

Some have objected to the Intuitionist View on exegetical grounds. For example, several authors have argued that in *APo* the term ‘*nous*’ is not used to refer to a faculty whereby first principles (including essences) are discovered but instead is used to refer to the acquired state (*hexis*) of knowledge one is when one knows first principles (including essences) as such. Some go on to add that in *APo* II.19 Aristotle clearly distinguishes the question of what state we are in when we know first principles (including essences) from the question of how such knowledge is acquired (see 99a18-19). While Aristotle’s answer to the former question is *nous*, his answer to the latter question (it is said) is *induction* (*epagōgē*):

> It is therefore clear that it is necessary that the primitives (*ta prōta*) come to be known by us by induction (*epagōgē*). (100b3-4, my translation).

However, this objection misconstrues the core thesis of the Intuitionist View. While some Intuitionists (notably Ross 1949: 85-86) talk of a ‘faculty of rational intuition,’ they do not deny that *nous* in *APo* refers to the acquired cognitive state (*hexis*) one is in when one knows a principle (including an essence). Moreover, Intuitionists readily agree that induction of the sort that Ross calls ‘intuitive induction’ is the process by which we come to know principles (including essences).

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67 I don’t actually endorse the view that *APo* II.19 tells us that induction is the way we reach first principles. I take the *ta prōta* in *APo* II.19 to refer to initial or “first” accounts of kinds of the sort discussed in *Phys.* I.1 184a21-184b14 and *APo* II.8 93b21-24. For an alternative reading of *APo* II.19 along these lines, see Bronstein 2012 and Bronstein 2016: ch.13. In any case, as I point out in the main text above, even if one thinks induction is the way one acquires knowledge of first principles, this does not undermine the Intuitionist Interpretation, since proponents of this view can appeal to “intuitive induction.”

68 Critics who make this move include Barnes 2002/1993: 268 and Burnyeat 1981: 130-133.

69 Ross describes *nous*, or “intuitive reason,” as a “state of mind” and explicitly acknowledges that it is the result of induction, albeit what he calls an ‘intuitive induction’ (Ross 1949: 85-8, 565). Likewise, Irwin describes *nous* as the state of intuitive knowledge acquired as a result of the induction: “Not surprisingly, both induction and *nous* are mentioned in the answer; the claim that ‘we must come to know the first principles by induction’ (100b3-5) suggests the process, and *nous* is perhaps understood as the product, though not necessary excluded from the process” (1988: 135). Frede explicitly denies that *nous* is a faculty used to acquire knowledge of first principles (including essences) and instead, like Irwin, identifies it with the cognitive state we are in when we know first principles (1996: 169-173).
core thesis of the Intuitionist View is not that we reach knowledge of principles by means of a faculty of *nous* but rather that our knowledge of principles is *intuitive in the sense that is epistemically basic*, i.e., *it does not depend some other knowledge for its justification*. This point is not touched by this exegetical objection. Hence, those hoping to find a textual objection to the Intuitionist View must look elsewhere.\(^7\)

In addition to this exegetical objection, Intuitionist interpretations have also been criticized on philosophical grounds. David Bronstein, for example, objects,

> The view is not particularly satisfying. The interesting question is how we discover that an attribute is part of the essence of its subject. The Intuitionist Picture appeals to perception, experience, and empirical inquiry in just the one way one would expect given Aristotle’s remarks on the subject – but then stops short, appealing to a mysterious faculty in order to deliver us the relevant knowledge. (2016: 111).

Again, notice that the objection targets the claim that there is a *faculty* of intuition rather than the Intuitionist’s core thesis, viz., that knowledge of essence is epistemically basic. Though there is something to Bronstein’s worry, it is not dialectically effective: opponents will say that Aristotle needs to appeal to intuition in order to secure the epistemically priority of our knowledge of first principles. In order to really address this response, opponents of the Intuitionist view must refute the Intuitionist’s claim that certain passages indicate that Aristotle requires that our knowledge of first principles be epistemically basic, i.e., not dependent for its justification on any of our other knowledge or beliefs. I address this issue in §7, where I respond to exegetical arguments in favor of the Intuitionist and Socratic View. For now, I wish to highlight how my discussion of Aristotle’s theory of essence allows one to formulate a more effective philosophical objection to the Intuitionist View.

\(^7\) Bolton seems to be the only commentator who is aware of this point and tries to deal with it by arguing that Aristotle’s other discussions of induction imply that knowledge based on induction is not epistemically basic but instead depends on one’s knowledge of the inductive base for its justification (see Bolton 1991: 15-17 and 2014: 41-43). My objection to the intuitionist view is related to Bolton’s objection, but it differs in that it explicitly ties the problem for the Intuitionist to Aristotle’s explanationist theory of essence.
The real problem with the Intuitionist View is that its claim that our knowledge of essential features is epistemically basic conflicts with Aristotle's answer to the real definition question, i.e., his claim that a kind's essential features are its explanatorily basic necessary features. If a thing’s essential features are its explanatorily basic features, then judgements about which features are essential will be justified by the judgement that such features explain the other regular features of the kind, a judgement which in turn depends on one's knowing that the explained features do in fact belong to the kind. Admittedly, these explanatory investigations require a certain kind of intelligence (perhaps the faculty of ‘nous’ discussed in the De Anima), including, e.g., an ability to make judgments about what explains what (such judgments may be intuitive or may be guided by discursive reasoning about what makes for a good explanation). But even if one’s correctly intuits that a certain feature E would explain the kind’s other regular features P₁, P₂,…,Pₙ, this is not sufficient to know that E is the essence of a certain kind S unless one knows (or at least justifiably believes) that S has P₁, P₂,…,Pₙ. The fact that the presence of E could explain the presence of P₁, P₂,…,Pₙ supports the claim that E is the essence of S only if one also knows (or at least justifiably believes) that P₁, P₂,…,Pₙ are regular attributes of S (knowledge which Aristotle holds is ultimately rooted in accumulated perceptual experience (empeiria)). Hence, given Aristotle’s explanationist theory of essence, our knowledge of essences cannot be epistemically basic, as proponents of the Intuitionist View maintain, but instead epistemically depends on our (empirical) knowledge of the explicable features of the definiendi.

§6. The Philosophical Superiority of the Explanationist View

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71 This seems to be the role George Bayer envisions for nous in our search for essences (see Bayer 1997). For a similar discussion of the role nous might play in our grasp of explanatory connections, see Bolton 2014: 49-53. In this regard, it is relevant to consider APo I.34’s discussion of “quickness of nous” (agchinoia). Given that agchinoia is the ability to quickly discover the middle term in an explanatory syllogism, it appears that Aristotle recognizes an intellectual capacity, nous, which one exercises when discovering the middle terms for an explanatory syllogism. If this is right, then in fact there is textual evidence that suggests Aristotle posits a faculty of nous in APo.
Besides revealing the problems with the Socratic View, the first two premises of my argument against the Socratic View can also be used to illustrate the merits of the Explanationist View:

(1) Aristotle holds a real definition theory of essence according to which the essence of a kind consists in its explanatorily basic feature(s).

(2) If a kind’s essence consists in those features of it which are F, then a method of discovering which of its features are essential is reliable iff the method can be used to reliably distinguish those of its features which are F from those which are not.

(5) The Explanationist View recommends a method which can be used to reliably distinguish those features of a kind which are explanatorily basic from those which are not.

(6) Therefore, the Explanationist View recommends a reliable method of discovering the essential features of a kind (for the theory of essence described in (1) above).

The new premise is (5), which can be defended in the following way.

At a minimum, the Explanationist method can be used to find out which of a kind’s features are not explanatorily basic. Recall that, like the Intuitionist and Socratic Views, the Explanationist View presupposes that we have some prior knowledge (rooted in our accumulated experience (empeiria) of at least some of the regular features of the definiendum. Rather than recommending the use of a faculty of intuitive reason or the methods of induction and division, the Explanationist View recommends that we inquire after the causes of these features. If the kind’s being F can be explained by some of its other feature(s), then F is not explanatorily basic. Hence, the Explanationist method can be used to rule out features as not explanatorily basic (and therefore not part of the definiendum’s essence).

But can the Explanationist method be used to reliably judge which features are explanatorily basic? Though success here is more uncertain, the Explanationist’s method does seem to offer as reliable a method as possible given the nature of the inquiry. If no explanation can be found for a given a necessary feature (and the inquirer suspects that this is not just result of her not having searched well enough), that attribute becomes, according to the Explanationist’s method, a plausible
candidate for being part of the definiendum’s essence. It will be an even more plausible candidate if the kind’s possession of some of its other features can be explained by this unexplained feature. Of course, proving a negative (i.e., that there is no other feature of the definiendum in virtue of which it has the feature in question) is never easy, so there is room for error in such judgments. Nonetheless, the method seems to be as reliable a method as one could ask for, given what one seeks to know.

In fact, an inquirer using the Explanationist method to search for an essence could be even more cautious. Even if we did not know what the definiendum’s explanatorily basic feature(s) are, we could still refer to them as ‘whatever feature(s) of it are part of the ultimate cause of its other regular features’ (e.g., the essence of a human being is ‘whatever feature(s) of human beings are part of the ultimate cause of their having arms, legs, a head, and other natural organs; their having the ability to think, sense, and move themselves; etc.’).

In other words, starting with this identifying description, we can make progress in our knowledge of the definiendum’s essence as we rule out candidate essential features when we find causes for them and discover new, explanatorily more basic features in our efforts to explain the regular features with which we started. As we advance in our knowledge of the causes of the definiendum’s attributes, we can correspondingly update our account of its essence as the ultimate cause of not just the original attributes but also the causes of these original attributes. Though more cautious in its claims about our ability to come to know fully the essences of things, this Explanationist procedure offers an even more reliable (though less ambitious) route to essences, a route which guarantees that only explanatorily basic features are included in our accounts of the essences of things.

72 Of course, we also must leave room for the possibility that some of these necessary features are not explicable at all but in fact themselves parts of the essence.
I conclude, then, that (5) is well-motivated: the Explanationist method is one which can be used to reliably distinguish those features which are explanatorily basic from those which are not. It follows from this that

(6) Therefore, the Explanationist View (unlike its competitors) recommends a reliable method of discovering the essential features of a kind (given the theory of essence described in (1) above).

§7. A Defense of the Exegetical Merits of the Explanationist View

We have seen that the Explanationist View’s epistemology of essence fits well with Aristotle’s explanationist theory of essence. Conversely, we have seen that the Socratic and Intuitionist Views fit poorly with that explanationist theory of essence and as a result face decisive problems, problems to some extent anticipated by Aristotle himself. This fact alone provides a strong reason to favor an Explanationist interpretation of Aristotle’s epistemology of essence over its competitors. Nonetheless, those who oppose the Explanationist interpretation have argued that there are texts which rule out such interpretation. Since other commentators have already done much to make the positive case for an Explanationist interpretation of Aristotle’s epistemology of essence,73 I shall focus here on defending the interpretation from these objections. In particular, I shall address five textual objections: one from Terry Irwin and four from David Bronstein.

Let’s start with the objection from Irwin. Irwin argues that our knowledge of principles must be epistemically basic based on the Aristotle’s claim that the premises of a demonstration must be “better known” and “more credible” than what is demonstrated from them. Consider the following text from *APo* I.2:

For a thing always belongs more to that thing because of which it belongs – e.g., that because of which we love is more loved. Hence if we know (ismen) and are convinced (pistemenen) because of the primitives, we both know and are convinced of them more (ismen te kai pistemenen mallon), since it is because of them that we know and are convinced of what is posterior. (72a29-33).

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Commenting on this passage, Irwin writes,

Demonstration must be from what is prior and more credible (pistotera) and since nothing is prior to the first principles they must be known (gnōrizein) through themselves…Aristotle’s demands for epistemic priority rule out all types of inferential justification, not merely demonstration. The principles are not entitled to their primacy unless they are non-inferentially justified altogether.\(^\text{74}\)

Hence, Irwin holds that Aristotle’s requirement that demonstrative premises be “better known” and “more credible” than the conclusion leads to the result that our knowledge of principles must be epistemically basic.

Irwin’s reading, however, depends on a misunderstanding of the sort of knowledge at issue: the knowledge at issue is not knowledge that the premise or conclusion obtains but rather knowledge why the premise or conclusion obtains. In other words, the knowledge at issue is epistēmē, which Aristotle tell us in APo I.2 requires that “we know (a) of the cause (aitia) because of which it is that it is the cause and (b) also that it is not possible for it to be otherwise” (71b10-13). This interpretation of the knowledge at issue is confirmed by a parallel passage in Top. I.1:

Now a deduction is an argument in which, certain things being laid down, something other than these necessarily comes about through them. It is a demonstration, when the premises from which the deduction starts are true and primitive (prōton), or are such that our knowledge of them has originally come through premises which are primitive and true…Things are true and primitive which are convincing (echonta tēn pistin) on the strength not of anything else but of themselves; for in regard to scientific first principles (tais epistēmonikais archais) it is improper to ask why they are (epizīteisbai to ñia ti); each of the first principles should command belief in and by itself. (100a25-30, 100b18-22).

Here Aristotle again tell us that principles must be “convincing on the strength not of anything else but themselves.” However, he goes on to clarify what he means by this, viz., that “it is improper to ask why they are.” The result is that the premises of a demonstration are “better known” and “more convincing” than the conclusion in the following sense: to know why the conclusion holds (and cannot be otherwise), i.e., to have scientific knowledge (epistēmē) of it, requires that one know that

\(^{74}\) Irwin 1988: 132.
the premises are true, but to know why the premises are true (and cannot be otherwise) does not require one to know that the conclusion is true. Principles, including definitional principles, are best known not because our knowledge of them is epistemically basic but rather because there’s no further facts which explains why the principle is true and hence no other facts which we must know in order to explain why the principle is true.75

Next, let us consider an objection from David Bronstein based on APo II.2.76 Here is the relevant passage:

When we seek whether a fact obtains (to hoti) or whether something is without qualification (to ei estin haplos), we are seeking whether or not there is a middle term for it; and when, having to come to know that the fact obtains or whether something is (partially or without qualification), we seek in turn the reason why (to dia ti) or what it is (to ti estin), we are then seeking what the middle term is…It turns out, therefore, that in all our searches we seek either if there is a middle term or what the middle term is. For the middle term is the cause, and this is what is sought in all these cases. (89b37-90a1, 90a5-7).

As Bronstein observes, this text implies that one can know that there is a middle term, i.e., a cause, for some fact S is P (where P is a necessary attribute of S) without knowing what the middle term (i.e., the cause) is. In other words, one can know that P is a demonstrable attribute (in itself accident) of S without knowing the explanation or cause of P’s belonging to S. But this raises a puzzle: how can one know that the fact that S is P is explicable, i.e., that “there is a middle term for it,” if one does not know what explains it, i.e., what the middle term is?

The Socratic View is specifically designed to solve this puzzle. According to the Socratic View, we can come to know the essence of a primary subject-kind by induction and the essence of its subordinate subject-kinds by division. Importantly, we don’t need to know how the features selected by induction or division explain the other necessary features of the kind to know that the selected features are essential. If one already knows what the essential features of S are, then one

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75 For further confirmation of this reading, see Metaph. V.5 1015b6-11.
76 See Bronstein 2016: 114-118. The argument in the main text is a distillation of Bronstein’s more lengthy treatment.
knows whether P is among S’s essential features and, if P is not among those features and yet necessarily belongs to S, then one can infer that the fact that S is P must be derivable from S’s essential features, even though one does not yet know how that derivation goes, i.e., what the middle term is.

Bronstein argues that the Explanationist, by contrast, cannot solve the puzzle. In particular, he argues that the Explanationist lacks the resources to explain how we can know that some other feature of S (the middle term) explain why S is P without knowing what that feature (the middle term) is. Unlike the Socratic View, the Explanationist View holds that we only know which features of a kind are essential to it by knowing that these features explain its other necessary features without themselves being explained. Hence, unlike the Socratic View, the Explanationist View cannot say that we use our prior knowledge of which features of S are essential to infer that the fact S is P is explicable. It seems that, according to the Explanationist, the only way to know that there is an explanatory middle term for the fact that S is P is to know what that middle term is. But Aristotle tell us in the passage above that one can know that there is an explanatory middle term for the fact that S is P without knowing what that middle term is. In short, the Explanationist, Bronstein argues, cannot accommodate this claim.

In order to meet his challenge, I propose an alternative interpretation of *APo* II.2 which does not commit Aristotle to such a view. On Bronstein’s interpretation, when Aristotle says that to seek whether S is P is to seek whether there is a middle term, Aristotle is using ‘middle term’ here to refer to the cause of S’s being P. Hence, Bronstein concludes that to know that there is a middle term for S’s being P is to know that there is a cause for S’s being P, i.e., that the fact that S is P is demonstrable. By contrast, on my proposed Explanationist interpretation, when Aristotle says that to seek whether S is P is to seek whether there is a middle term, he is using ‘middle term’ here to refer to an account of P. The middle term M may be the cause of P, i.e., that in virtue of which S is
P, but it need not be: it may just be a nominal account of P, something which is “prior and more familiar in relation to us [the inquirers]” but not “prior by nature.” This point is further supported by the observation that Aristotle is here discussing seeking (zetein) whether S is P, not merely discovering that S is P. Presumably, one must have some preliminary account of what it is to be P in order to seek (as opposed to unintentionally discover) whether something is P. For example, to seek whether clouds of a certain type produce thunder, one must have some notion of what thunder is, e.g., do clouds of that type produce a certain kind of noise? Since one can use this sort of middle term to come to know whether S is P without knowing whether this middle term is the cause which explains why S is P, one can use it to know that S is P without knowing that there is a cause of S’s being P. In short, on this Explanationist reading of APo II.2, one can learn that there is a middle term M for the fact that S is P without learning that there is a cause of S’s being P, i.e., without knowing whether P is a demonstrable attribute of S or an essential attribute of S. Thus, in contrast to Bronstein’s Socratic interpretation, no prior knowledge of S’s essence is required to know that there is a middle term for a fact, given that the middle term in question need not be the explanatory middle term or cause. Contrary to what Bronstein suggests then, APo II.2 can be given a plausible Explanationist reading.

In response, Bronstein would object that this reading cannot account for the last bit of the aforementioned passage from APo II.2:

It turns out, therefore, that in all our searches we seek either if there is a middle term or what the middle is. For the middle term is the cause, and this is what is sought in all these cases.

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77 For Aristotle’s contrast between what is “prior by nature” and “prior in relation to us,” see APo I.4, 71b32-72a6 and Phys. I.1, 184a16-184b14.
78 Seeking (zetein) is not the only way to learn that S is P. One might also learn that S is P by “perceiving” (aisthanesthai) that particular Ss are P enough times to support an inductive inference from one’s accumulated experience (empeiria) to the conclusion that all or most Ss are P. For an example of this, see APo 2.2 90a24-31. Bronstein agrees with this point – cf. Bronstein 2016: 155.
79 APo II.2, 90a5-7, Bronstein’s translation (2016: 115).
On Bronstein’s interpretation, Aristotle affirms here that when seek whether a fact (to hoti) obtains we seek whether there is a middle term which explains that fact. Hence, contrary to what I suggested, when Aristotle says that to seek whether a fact holds (e.g., S is P) is to seek whether there is a middle term for it, he is not just using ‘middle term’ (‘meson’) here to refer to any account of P whereby one can come to know that S is P but rather to the middle term which explains why S is P. If this is right, then the Explanationist is again stuck with the awkward result of explaining how one can know that a fact has a cause if one does know the subject’s essence and hence does not know whether the attribute is among the indemonstrable features which constitute the subject’s essence.

Closer attention to the Greek, however, suggests that this text can be interpreted in a way consistent with my Explanationist reading. Here is the alternative translation:

It turns out, therefore, that in all our searches we seek either whether a middle term is (ei esti meson) or what the middle term is (ti esti to meson). For the middle term is the cause (to men gar aition to meson), and this is what is [ultimately] sought in all cases.80

When Aristotle describes the knowledge that we have when we know that a fact obtains or whether something is, he says that we know that there is a middle term (‘meson), using the term ‘meson’ without a definite pronoun. When he describes the next step in which we look for why the fact obtains or what the existing thing is, he says that we are looking for the middle term (‘to meson’), using the definite pronoun. My alternative reading of the text takes this linguistic difference to signal a difference between any old middle term (whether or not it’s the explanatory middle term) and the (explanatory) middle term, i.e., the correct middle term from the point of scientific explanation. On this reading, the passage does not imply that the middle term whose existence we seek when we seek whether a fact obtains is the same middle term which we seek when we seek why that fact obtains. Instead, the middle term whose existence we seek when we seek whether a fact obtains is an account of the property ascribed to the subject by the fact, an account which may or may not specify the

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80 Sumbanei ara en hopasais tais zêtèces zêtèin è ei esti meson è ti esti to meson. To men gar aition to meson, en bapasi de touto zêtèlai.
cause and essence of the property. If we discover that this account holds of the subject, we know that the property of which it is account belongs to the subject, i.e., we can infer that the fact obtains. In short, on this reading, no prior knowledge of the subject’s essence is required to seek and come to know a fact (to hoti) about that subject. Instead, all that is required is some account of what it is for that fact to obtain.

There are two reasons to prefer this reading to Bronstein’s reading. First, on Bronstein’s reading, when Aristotle asks whether a fact (to hoti) holds (e.g., “Is the moon eclipsed?” – cf. APo II.2, 90a3), he intends to be asking whether that fact is demonstrable (e.g., “Is there a cause of the moon’s being eclipsed?”). This reading conflicts with the contrast Aristotle draws elsewhere between knowing that (botti) a fact obtains and knowing why (dioti) that fact obtains. For example, in Metaph. A.1, Aristotle contrasts the person with experience (empeiria) who knows that a fact obtains (e.g., that fire is hot) but not why the fact obtains with the person who knows why the fact obtains (981b10-12). Here it is clear that the known fact, an item of experience, is not that a certain fact is demonstrable (e.g., it is demonstrable that fire is hot), but rather just that a certain subject has a certain attribute (e.g., fire is hot). Aristotle offers a similar contrast between knowing that (botti) a fact obtains and knowing why (dioti) it obtains in APo I.13. There he writes,

To scientifically know (epistasthai) the fact (to hoti) and the reason why (to dioti) differ. First, [they differ] in the same science in two ways: (1) in one way, if the deduction does not come about through immediates (for the first cause (to proton aition) is not assumed, but understanding of the reason why occurs in virtue of the first cause); (2) in another way, if [the deduction] is through immediates but not through the cause but through the better known [to us] of the converting terms. For nothing prevents the non-causal one of [two] counterpredicated terms from sometimes being better known [to us], so that the demonstration will occur through this. (78a22-31).

Aristotle goes on to give his famous example of the twinkling planets:

E.g., [consider the deduction] that the planets are near [which occurs] through their not twinkling; let C be the planets, B not twinkling, A being near. It is true to say B of C: for the planets do not twinkle. [It is also true to say] A of B: for what does not twinkle is near (let this be grasped by induction or perception). So it is necessary that A belongs to C, with the result that it has been demonstrated (apodeiktau) that the planets are near. But this
deduction is not of the reason why but of the fact, for it is not because they do not twinkle that they are near, but because they are near they do not twinkle. (78a31-39).

Here Aristotle gives an example of a deduction which provides knowledge only of the fact, not the reason why the fact holds. It fails to provide knowledge of the reason why the fact holds because the middle term in the deduction is not a causal middle term: the planet’s not twinkling does not explain why they are far away; rather, it is the planet’s being far away which explains why they do not twinkle.

Unlike Bronstein’s reading of APo II.2, my reading fits with this general contrast between knowing that a fact obtains and knowing why that fact obtains. On my reading, the point made in APo II.2 is that one can inquire whether a fact (e.g., S is P) obtains by inquiring whether one’s account of the property ascribed to the subject holds of that subject. If one models this inquiry using Aristotle’s syllogistic, the account of the property serves as the middle term whereby one comes to know that the property (the major term) belongs to the subject (the minor term). Hence, Aristotle can say in APo II.2 that to seek whether a fact holds is to seek whether there is a middle term for it without implying that that fact must be explicable: it may turn out, as in the case of the deduction of the fact that the planets are far away, that the deduced attribute is a cause of the middle term from which it is deduced.

A second reason to favor my reading of APo II.2 over Bronstein’s reading emerges from a close examination of Aristotle’s procedure in APo II.8. After discussing some puzzles in APo II.3-7, in APo II.8 Aristotle returns to and develops the view discussed in APo II.2. In particular, in APo II.8 Aristotle claims that one cannot know non-incidentally that something is without having some grasp or account of that thing. He offers several examples of this: “of thunder, that it is a sort of noise in the clouds; of an eclipse, that it is a sort of privation of light; of man, that he is a sort of animal; of soul, that it something which moves itself” (93a22-24). If one models this knowledge
using Aristotle’s syllogistic, this preliminary grasp or account will play the role of a middle term for the known fact. To illustrate this, Aristotle provides two examples:

(a) When we grasp something of what a thing is, suppose first that it is like this. Eclipse $A$, moon $C$, screening by the earth $B$. To ask whether it is eclipsed or not is to seek whether $B$ is or not. This is no different from seeking whether there is an account of the eclipse; and if there is, we say that it is eclipsed…When we discover it, we know at the same time the fact (to $bhoti$) and the reason why (to $dioti$)…

(b) Otherwise we know the fact but not the reason why: moon $C$, eclipse $A$, not being able to produce a shadow during full moon although nothing visible is between us and it $B$. If $B$, not being able to produce a shadow although nothing visible is between us and it, holds of $C$, and $A$, being eclipsed, holds of $B$, then it is plain that (to $bhoti$) it is eclipsed but not yet why (to $dioti$); and we know that there is an eclipse but we do not know what it is. (93a22-24).

In support of my reading, example (b) clearly indicates that Aristotle thinks you can come to know a fact (to $bhoti$) (e.g., that the moon is eclipsed) by means of a middle term (e.g., not being able to produce a shadow although nothing visible is between us and it) which is not a cause of that fact (to $dioti$). Given that these examples illustrate Aristotle’s claim in $APo$ II.2 that to seek whether a fact holds is to seek whether there is a middle term, they again show that the relevant middle term need not be the causal middle term, contrary to what Bronstein claims. On the other hand, against Bronstein’s reading, both examples (a) and (b) support my previous claim that the relevant sort of fact (to $bhoti$) under discussion in $APo$ II.2 and $APo$ II.8 is not the fact that some fact is demonstrable (e.g., that the moon’s being eclipsed is demonstrable) but rather the fact that the subject is unqualifiedly ($haplōs$) (e.g., there are eclipses) or that some subject has some property (e.g., that the moon is eclipsed). In short, this text to provide a strong reason to reject Bronstein’s Socratic reading of $APo$ II.2 in favor of my alternative Explanationist reading of $APo$ II.2. Hence, Bronstein’s strongest objection to an Explanationist interpretation of Aristotle can be rebutted.

That being said, it remains to consider three other texts which Bronstein uses to motivate a Socratic interpretation over an Explanationist interpretation.
The second text Bronstein uses to argue for a Socratic rather than Explanationist interpretation is *DA I.1 402b16-403a2*. Here is Bronstein’s translation of the passage:

(a) It seems that not only is knowing the essence (*to ti esti gnōnai*) useful for apprehending the causes (*tas aitias*) of the [demonstrable] attributes (*tōn sumbebēkotōn*) of substances (just as in mathematics [knowing] what straight and curved are, or what line and surface are, is [useful] for discerning how many right [angles] the angles of a triangle are equal to), but also conversely, [knowing] the [demonstrable] attributes contributes a great part (*sumballetai mega meros*) to our knowledge of the essence (*pros to eidenai to ti estin*). (b) For whenever we are able to give an account in conformity to our experience of all or most of the [demonstrable] attributes, at that time we will be able to speak best about the substance (*ousia*). (c) For in every demonstration the essence is a principle (*archē*), so that whichever definitions do not [enable us] to come to know (*gnōrizein*) the [demonstrable] attributes, and do not even make it easy [for us] to form a guess about them, it’s clear that all [these definitions] are stated in a dialectical and empty manner.81

Now, according to Bronstein, this passage favors the Socratic View for three reasons. First, Bronstein argues that part (a) of the passage suggests that we have a way of coming to know S’s essence prior to seeking out the explanations of S’s demonstrable attributes, since knowledge of S’s essence is, in Aristotle’s words, “useful for apprehending the causes of the demonstrable attributes.”82 Second, Bronstein argues that part (b) of the passage suggests that we can improve our knowledge of S’s essence by coming to know it as the explanation of S’s demonstrable attributes, which implies that our original knowledge of S’s essence was not based on these explanatory considerations.83 Third, Bronstein argues that part (c) of the passage again suggests that the inquirer “has a candidate definition before she attempts to explain from it” and hence that “we do not define a subject-kind by explaining its demonstrable attributes, as we do in the Explanationist Picture” but “rather, explanation (and thus demonstration) is the way we transform our non-noetic knowledge of a subject-kind’s definition, which we previously discovered by different means.”84

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81 Bronstein 2016: 120.
82 Ibid. 121.
83 Ibid.
84 Ibid. 123.
Though Bronstein offers an interesting Socratic reading of this passage, it can also be read in a strongly Explanationist light. First, instead of taking part (a) to suggest that we have a way of coming to know S’s essence prior to seeking out the explanations of S’s demonstrable attributes, we can take part (a) to be making the point that, on the one hand, identifying S’s essence can help show why S has certain attributes (e.g., why a triangle has interior angles equal to two right angles) while, on the other hand, our knowledge of S’s attributes is a very important \((\text{sumballetai mea meros})\) precursor to figuring out what S’s essence is: after all, S’s essence, i.e., S’s explanatorily basic feature(s), must be the ultimate cause of its other necessary but non-essential attributes. Part (b), moreover, makes the point that our understanding of a substance is better to the extent that we know the causes of the substance’s demonstrable attributes, a point which can be readily endorsed by the Explanationist. After all, according to the Explanationist, we typically start with a preliminary account of the substance which does not pick out the ultimate causes of its demonstrable attributes and then advance towards a more accurate account of its essence by figuring out what its more explanatorily basic features are. For example, one starts by defining thunder as *certain kind of noise which occurs in the clouds*, but one refines this definition when one discovers that thunder occurs in the clouds because it is due to the extinguishing of fire in the clouds: here the fact that thunder is due to the extinguishing of fire explains why thunder occurs in the clouds and hence our definition of thunder can be improved by moving from the definition of thunder as *a certain noise which occurs in the clouds* to the definition of thunder as *a noise which is due to the extinguishing of fire in the clouds*. 85 Finally, part (c), rather than commending a methodology in which one first postulates a definition based on non-explanatory considerations (as in division and induction) and then tries to explain a thing’s other features using this definition, condemns such an approach as “dialectical and empty” rather than genuinely scientific. After all, a definition is an account which is meant to make clear the

85 See *APo* II.8 for Aristotle’s discussion of this process in which one improves one definition of thunder.
definiendum’s essence, and the definiendum’s essence consists its feature(s) which are explanatorily basic, i.e., not caused by anything else and the ultimate causes of its demonstrable necessary and for the most part attributes. Hence, any method not based on these explanatory considerations produces definitions that are “dialectical and empty,” i.e., definitions which do not do what definitions are supposed to, viz., make clear why the thing has the necessary and for the most part features that it has. In fact, as previously mentioned (see §3.2), Aristotle criticizes his predecessors’ definitions of soul precisely on this basis. For example, in *DA* I.4 he writes,

It is impossible not only that these characters should give the definition of soul – it is impossible that they should even be incidental to it! The point is clear if the attempt be made to start from this account [of the soul] and explain from it the affections and actions of the soul, e.g., reasoning, sensation, pleasure, pain, etc. For, to repeat what we have said earlier [in the last line of the passage quoted above], it is not easy even to make a guess based on this account. (409b12-18).

In summary, as in the case of *APo* II.2, there is a plausible Explanationist reading available for this *DA* I.1 passage and hence there is no need to adopt a Socratic interpretation of it.

The third passage adduced by Bronstein is *Prior Analytics* I.30 46a17-27. Here is Bronstein’s translation of the passage:

(a) Most [principles] are proper to each [science]. That is why it is characteristic of experience to provide the principles concerning each thing. I mean, for example, that astronomical experience [provides the principles] of astronomical science; for once the phenomena were sufficiently grasped, in this way the demonstrations of astronomy were discovered. Similarly with any other craft or science. As a result, if the attributes (*ta huparchonta*) of each thing are apprehended, at that point it falls to us to exhibit readily the demonstrations (*tas apodeixeis betoiμai emphanizein*). (b) For if none of the true attributes (*huparchonton*) of the objects had been omitted from the collection of facts (*historian*), then, that about which there is a demonstrations, we will be able to discover this [demonstration] and demonstrate it, and, that about which there is by nature no demonstration, [we will be able] to make this clear.

Regarding part (b) in particular, Bronstein comments,

Aristotle writes carefully. He does not say that once all the facts are in we can discover which of them are demonstrable, as we would expect him to say if the Explanationist Picture were right. Rather, he is careful to say that once the facts are in we can discover their demonstrations (i.e., their causes). This suggests that at the prior, historia stage the facts are already divided into the demonstrable and the essential. For if they are so divided, the
inquirer can then ‘readily exhibit the demonstrations’, as Aristotle says just above. She does not need to do the extra work of determining which facts need demonstrating; her task is limited to finding the causes of the facts whose demonstrability is already known.\footnote{bronstein 2016: 126.}

Moreover, Bronstein tentatively suggests that this procedure can be seen at work in Parts of Animals II–IV, since in these texts Aristotle seems to appeal, in Socratic fashion, to our prior knowledge of an animal’s essence to explain why it has the parts it does instead of using, in Explanationist fashion, the facts about its parts and their causes to find out what the animal’s essence is.\footnote{Ibid. 126–127.}

In response, the Explanationist can easily put pressure on the idea that either \textit{APr} I.30 46a17-27 or \textit{PA} II–IV reflects a Socratic View rather than an Explanationist View. First, it’s not clear why Aristotle’s claim that “once the facts are in we can discover their \textit{demonstrations} (i.e., their causes)” should be taken to be a problem for the Explanationist. After all, the Explanationist believes that we advance towards knowledge of a kind’s essence when we manage to identify causes of its demonstrable attributes, for this allows us to rule out the caused attributes as candidates for being part of its essence and to know that its essence involves either the causes of these caused attributes or, if their causes are not explanatorily basic, the causes of these causes. Moreover, it’s not clear what Bronstein has in mind in suggesting that the Explanationist thinks there is the “extra work of determining which facts need demonstrating.” After all, for the Explanationist, one (typically) does not know that an attribute is demonstrable in any other way than by discovering its cause, and so there is no “extra work” here beyond the normal work of figuring out which things are caused by what, a task which the Socratic inquirer must engage in as well. Finally, there is no need to take Aristotle’s procedure in \textit{PA} II–IV as non-Explanationist on the grounds that his procedure there involves using claims about the essences of animals to explain why they have the parts that they do. Instead, this procedure just is the Explanationist method at work: Aristotle has some
necessary attributes of the definiedum in mind (e.g., animals are capable of perception and self-motion) and is illustrating how these attributes explain why the definiendum has certain other necessary or for the most part attributes (e.g., animals have such and such organs because they are needed for them to exercise their powers of perception and self-motion). In doing so, the demonstrated attributes are recognized as non-essential and their (final) causes are recognized as more explanatorily basic and hence as candidates for being parts of the animal’s essence (provided, of course, that these causes cannot be themselves explained by other features of the animal). No prior, non-explanatory knowledge of the animal’s essence is required to make sense of this procedure.

In fact, *APr* I.30 46a17-27 seems to pose a much greater exegetical problem for the Socratic View than for the Explanationist View. After all, *APr* I.30 makes no mention of the putative role of division and induction as the central methods by means of which we acquire knowledge of the essences or “principles” of subject-kinds. Instead, it gives a central place to the explanatory method at the heart of the Explanationist View: first, learn through empirical study as many of the regular attributes of the definiendum as you can, and then, second, work out the explanatory relationships between these attributes best as you can. The attribute(s) which turn out to be most explanatorily basic are then plausible candidate essential feature(s), provided that they cannot also be explained by even more basic features of the definiendum.

Finally, the last and most important text which Bronstein uses to motivate a Socratic rather than Explanationist interpretation of Aristotle is *APo* II.13. *APo* II.13 is a notoriously difficult chapter in the *APo*. Here are just some of the difficulties associated with it: it contains a number of cryptic passages, how the different pieces of the chapter fit together is uncertain, and the chapter’s relationship to the rest of *APo* II is disputed. In light of this, Bronstein’s effort to find a coherent interpretation of the chapter which identifies its contribution to *APo* as a whole is a commendable
undertaking. Nonetheless, one worries that, in his effort to find a place for the chapter in a comprehensive interpretation of \( A\Phi \), Bronstein has inadvertently given the chapter a more central place than it deserves. Unfortunately, there are far too many exegetical issues associated with this chapter for me to discuss them in detail here. Fortunately, Explanationist-friendly interpretations of \( A\Phi \) II.13 have been offered by other commentators.\(^{88}\)

For now, I shall simply say this: though Aristotle may say some positive things about the method of division in \( A\Phi \) II.13, the constant theme running throughout all of his discussions of division in \( A\Pi, A\Phi, PA, \) and \( \text{Metaph.} \) is an emphasis on its limited usefulness (at least when not supplemented by explanationist considerations).\(^{89}\) Since the method of division was part of the received philosophical methodology of the Academy, it makes sense that Aristotle should spend some time discussing the method, criticizing how it has been used, and exploring ways to improve it. However, given that Aristotle repeatedly raises worries about the ability of division to explain anything, it is doubtful that he could have really thought that, without being supplemented by explanatory considerations, division could serve as the primary means of arriving at knowledge of a thing’s essence, given that a thing’s essence is, on Aristotle’s view, its explanatorily basic feature(s). Rather than serving as a means of identifying the essential and hence explanatory basic features of a definiendum, division is more apt to play an useful auxiliary role in the process of Explanationist inquiry, e.g., perhaps as a tool for organizing explananda and explanantia into groups and/or a method for coming up with a more sophisticated preliminary account of the definienda which picks out the definienda using taxonomic features which may be ultimately explained by more explanatorily basic features.\(^{90}\) In any case, for our purposes here, it is enough to note that there are

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\(^{89}\) For Aristotle’s discussions of the method of division, see \( A\Pi \) I.31, \( A\Phi \) II.5, \( A\Phi \) II.13, \( PA \) I.2-4, and \( Metaph. \) VII.12.

\(^{90}\) For an interpretation along the former lines, see Lennox 1987. For an interpretation along the latter lines, see Bolton 1993 and Charles 2000: ch.9. Other proposals in a similar vein can be found in Bayer 1998 and Ferejohn 1991.
several plausible, Explanationist-friendly alternatives to Bronstein’s Socratic interpretation of APo II.13 and hence no need to abandon an Explanationist interpretation of Aristotle because of it.
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