Aristotle and the Problem of Concepts

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Abstract

By a "concept" , I mean a unitary thought (of the sort normally represented by a word) that applies to a plurality of differing objects, and by "The Problem of Concepts" I mean the pervasive philosophical questions of how such thoughts are to be explained and by what standards they are to be evaluated. Aristotle is generally held to have been a Moderate Realist, who held that a concept is a putative grasp of a mind-independent universal object that exist somehow in or derivatively on the many particular objects to which the concept applies. I argue that Aristotle rejected the posit of such universal objects and instead understood universality as a feature of thought, which has a basis in reality and a function in cognition. With some notable exceptions, concepts are based on relations of difference in "the more and the less" between their instances and on the causal relations between the various parts and characteristics of each instance. A concept's function is to serve as a term in deductions which enable us to represent the necessity of causal connections. I go on, then, to explore the manner in which, on Aristotle's view, concepts compose propositions and bodies of knowledge and the way in which they are formed.

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PREFACE

This project has taken four years to complete; during that period and the years leading up to it, I have benefitted from the input and support of a number of people. I'd like to begin by thanking my advisor, Jim Lennox, first, for all the guidance he has given me on every aspect of this project and for always making himself available to discuss it, second, for his consistently insightful and prompt feedback on my material, and, third, for his patience. I'd like to thank my committee as a whole for their input, especially in connection with the first two chapters, which strongly reflect the influence of conversations with each member. I owe Allan Gotthelf a special debt of gratitude, and not only for his role on the committee. Ten years ago, as one my first philosophy professors, he introduced me both to Aristotle and to the philosophical study of concepts. He continues to be invaluable as teacher, a mentor, and one of my closest friends.

Many other friends deserve acknowledgement as well. My thinking on some of the topics of this dissertation has been spurred by conversations over the years with Jason Rheins and Harry Binswanger, and with Ben Bayer, who also read and commented on portions of the text. Many of my friends have been important sources of encouragement; in addition to those already mentioned, I'd like to single out Robert Mayhew, Tara Smith, John McCaskey, and Onkar and Debi Ghate. My girlfriend, Karen Shoebotham, has also been a source of such encouragement, and I'd like to thank her for this and for the many other contributions she's made to my life over the past for years. I would also like thank my parents for their unfailing support, over the years, which has taken too many forms to enumerate here.

Finally, I'd like to acknowledge the support of several institutions. The University of Pittsburgh and the Andrew Mellon Foundation provided fellowships which supported me during the second and third years of this project. The Ayn Rand Institute has been supportive of my career in a number of ways, and I'd like to thank them especially for grants which freed me from

teaching during the summer of 2004, when I began work on this project, and also during my final year of work on it.

I turn now to the more mundane task of announcing some conventions regarding texts, translations, and citations. Except where otherwise indicated, translations from Greek are my own, and are from the texts included in the *Thesaurus Linguae Graecae* (TLG). Square and angle brackets, which I sometimes reproduce in the translations, represent material so bracketed in these texts (though, for these purposes I don't distinguish between things that appear in square brackets and daggers in the text). Interpolations of my own in quoted material (whether translated or otherwise) are enclosed in braces. Citations to 20th Century and most 19th Century works are in the "name, date" format. Earlier texts are cited by their titles, with portions referred to by section, paragraph, or line number depending on the scholarly convention associated with the relevant text. I have often found it necessary to use (rather than merely mention) Greek words in my exposition. Because of this, I have dispensed with the tradition of omitting quotation marks around mentions of Greek words.

1.0 THE PROBLEM

My aim in this dissertation is to determine Aristotle's position on what I take to be one of philosophy's fundamental and most persistent problems. I call this problem the "Problem of Concepts", though it is more commonly known as the "Problem of Universals". A fundamental problem cannot be defined without controversy. It forces itself upon philosophers from different traditions in different periods, who address it in their differing vocabularies and in the context of their differing assumptions. The Problem of Concepts is no exception. I will offer my own account of it shortly; for the moment, it will be sufficient to give the problem's resumé—to list some of the debates and doctrines that have been forms or consequences of it.

The problem arose in Socrates' search for definitions and motivated Plato's Theory of Forms. In the Medieval period, it became a debate about the metaphysical status and location of "universals". In the early Modern period, it was the debate over the existence and nature of "general ideas". For Kant and his successors, the conviction that concepts spring from the mind prompted a radical reconceptualization of the relationship between mind and world. The Problem remains current in the growing literature on concepts, in theories of reference, in continued debates about the ontological status of universals, in questions about the proper methods of scientific classification and about what makes these methods proper, and in debates about whether perception has the kind of "content" that can serve as a justification for propositional (i.e., conceptual) knowledge.

Many of the positions in these contemporary and historical debates claim Greek pedigrees, and, in every period, the scholarship of Greek philosophy has been motivated and colored by then-contemporary ideas. Recent philosophers have increasingly looked to Aristotle for inspiration and have inspired a renewed scholarly interest in him. Most notable in this

connection is the literature on natural kinds originating in the works of Putnam and Kripke.[1] It self-consciously looks back to Aristotle and it has informed and motivated the work of scholars such as Bolton and Charles.[2] A similar pattern is evident in Nussbaum's attribution to Aristotle of a Kantian/Putnamite "internal realism," and Irwin's contrary attribution to him of an anti-Kantian "metaphysical realism".[3] Both advocate the position they attribute to Aristotle and do so for what they take to be Aristotelian reasons. Michael Esfeld (2000) argues that a study of Aristotle's "direct realism" about cognition shows us how, in general, the "price" of direct realism is a McDowell-like "ontology on which the world has a somewhat conceptual structure," and McDowell himself has compared his conceptually structured world with Aristotle's conception of the structure provided by form.[4] These controversies show Aristotle's relevance to contemporary thought, but they also show a lack of consensus about Aristotle's position on the nature of concepts and their relationship to the world that we know by means of them. My aim in this dissertation is to address this question directly—to determine Aristotle's position on The Problem of Concepts.

In order to proceed, I must first define the Problem in terms that capture the fundamental philosophical issue, are true to concerns that moved Aristotle himself, and are accessible to a philosophical readership that is increasingly diverse in its methods, assumptions, and technical vocabulary. In the first part of this chapter, I lay out the Problem as I understand it, making little reference to any of the controversies that I listed in the Problem's resumé above. In the second part, I discuss how this problem arose in Plato's dialogues, where Aristotle identified it as the motivation for Plato's Theory of Forms. In the third, and final part, of the chapter, I will discuss the relation between the Problem of Concepts and the Problem of Universals as it is traditionally understood.

No way of posing a fundamental philosophical problem will be intuitive to all readers, but I hope that my way will not be idiosyncratic. Whether or not readers are convinced that the Problem as I lay it out is *the* fundamental problem responsible for all the controversies that I listed in the resumé above, I hope they will recognize it as a problem of importance.

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[1] See Kripke 1980 and Putnam 1977.
[2] See Bolton 1976 and Charles 2000.
[3] See Nussbaum 1986 and Irwin 1988a.
[4] Personal conversation, October 2004.

Given the nature of my project, there is one issue that I must discuss briefly in advance. It may seem odd to speak of a problem of "concepts" in a work on Aristotle, since "concept" does not translate any word in Aristotle's Greek (at least not without controversy). Nevertheless, as I will argue later, this term best captures something that Aristotle was thinking about, and by raising the problem in terms that are not part of his vocabulary, I avoid pre-judging interpretive questions about his technical terms ("καθόλου", "νόημα", "εἶδος", "ὅρος", etc.).

1.1 INTRODUCTION TO THE PROBLEM OF CONCEPTS

1.1.1 Concepts as unitary cognitions of indefinitely many differing objects

When I speak of "concepts," I mean the basic units or components of thought (expressed in language by words), each of which is (or enables) a unitary cognition of an indefinite number of differing objects. For example, the concept "man" subsumes all men, tall and short, black and white, local and distant, past, present, and future. Consequently, when one thinks that men are mortal, one unitarily affirms mortality of indefinitely many differing men.[5] Similarly, when one thinks that triangles have an angle sum equal to that of two right angles, one thinks this at once about all triangles—equilateral, isosceles and scalene. Again, when someone commits himself to acting justly, he commits in a single mental act to an indefinite number of differing actions in differing circumstances, the particulars of which actions and circumstances he may not be able to foresee.

In defining concepts as "cognitions," I mean to identify them with states or abilities of the conscious subject.[6] Of course, in some sense different subjects can share the same concept, as they can share the same knowledge or the same abilities, and this fact may call for explanation. Proposed explanations have often involved positing some existent apart from both the subjects and the many objects (e.g. a Fregean sense, which is supposed to be a mind-independent "mode

[5] I am assuming here that the same concept is expressed by plural and singular forms of the same word, and more generally that all the various grammatical forms of a given word express the same concept. However, nothing in what follows will turn on this assumption.

[6] Compare Geach 1971 18-19, Anglin 1977 1-2, Fodor 1998 23, and Murphy 2004 1.

of presentation" of an object).[7] Such existents would not be concepts, as I use that term. Rather, on such a view, the concept would be the relation in which each individual subject must stand to the posited existent in order to be able entertain the relevant thoughts.

This said, however, I mean my definition of "concept" to be as generic as possible. Any theory of what it is to think in general about, e.g., men, is a theory of concepts, no matter whether it accounts for these thoughts in terms of a complex mental entity or capacity, a direct acquaintance with a universal human nature, a disposition to use particular sounds or images in particular ways, the thinker's membership in a linguistic community, or in some other terms. From within the context of some theories of concepts it may be more natural to set up the Problem in a different way than I have, but I do not mean my framework to rule out any theory.

In a similar spirit, when I say that concepts are the components or units of thought of the sort expressed by single words, I do not mean to exclude the possibility that there are some concepts that either lack words altogether or are expressed by multi-word phrases. I merely mean that the paradigm cases of concepts are expressed by single words. If (either in fact or according some theory) the way in which we think of pet fish (or of some unnamed group) is trivially different from the way in which we think of fish, then our cognition of pet fish will be a concept.

When mentioning (as opposed to using) a given concept, I will enclose the word expressing it in quotes, as I would when referring to the word. When I speak of an "instance of a concept", I mean one of the many differing things of which the concept is a cognition. So, for example, Socrates would be an instance of the concept "man" and Helen's beauty[8] an instance of the concept "beauty".

1.1.2 The Problem of Concepts: How can pluralities be unitarily cognized?

The Problem of Concepts is simply the question of what concepts are, or—what amounts to the same thing—*how we are able to have unitary cognition of a plurality of differing objects.* Since the instances of a concept are many and diverse, it is unclear what the *object* of the concept is—i.e., what it is precisely that someone is thinking *of* when he employs the concept. If the object is

[7] Frege 1970 57.
[8] Or perhaps Helen herself or Helen's appearance; theories of concepts may differ on this score.

the many instances, how does the thought have its unitary character? If the object is not the instances but some unitary thing, then what is this thing, by what means are we aware of it, and in what sense is the thought still a thought *of* the instances—i.e., how does it manage to apply to them? By answering these questions, a theory of concepts would provide an explanation of our ability to think unitary thoughts about (or applying to) a plurality of differing objects.

The Problem of Concepts, then, is the problem of explaining a certain human ability. There are many other questions that take a similar form. It will be instructive to consider several:

> How are we able to perceive three-dimensional objects that persist over time when our several sense organs are separately and sporadically stimulated by distinct forms of ambient energy?
>
> How are we able to process ingested material, which is not human tissue, into human tissue?
>
> How are we able to turn a group of distinct ingredients, none of which is bread, into a loaf of bread?

In each case, there is an ability to perform a certain action and this ability takes certain objects or inputs. Any theory explaining such an ability will need to do so in terms of facts about both the objects and the agent. Aristotle's account of the operation of the nutritive faculty gives us the basic pattern here. He pointed out that the food that we ingest is potentially but not actually like us (i.e., is potentially, not actually, human tissue) and that we have the ability (or potential, δύναμις) to convert this food which is potentially like us into something that is actually like us.[9] Modern biologists have fleshed out Aristotle's account, explaining the potencies of the food and of the organism, but the basic explanatory pattern is the same.[10]

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[9] See *De Anima* II.4. For a brief and useful discussion of Aristotelian explanation in terms of potentials, see Gotthelf 1987 209.

[10] One popular college Biology text, for example defines digestion as "the process of breaking down food into molecules small enough for the body to absorb". It continues:

> The bulk of the organic material in food consists of proteins, fats, and carbohydrates in the form of starch and other polysaccharides. Although these macromolecules are suitable raw materials**,** animals cannot use them directly for two reasons. First**,** macromolecules are too large to pass through membranes and enter the cells of the animal. Second, *the macromolecules that make up an animal are not identical to those of its food.* (Campbell, Reece, and Mitchell 1999 798, emphasis added.)

The text continues to note that all organisms build their macromolecules out of a small set of monomers, and that "digestion cleaves macromolecules into their component monomers, which the animal then uses to make its own molecules". Food is digestible, then, in part because it is made of the same components as the animal itself and so have the potential to be "cleaved" into these components, which can be recombined into the macromolecules that make up the animal. The book goes on to observe that the animal breaks down the macromolecules through the

Like metabolism, baking and perception are explained by facts about the objects and about the agents. Not just any group of ingredients can be baked into a cake. The ingredients must have certain characteristics. In order to turn appropriate ingredients into a cake, the baker must perform certain actions on them—he must mix and heat them in certain ways, and to perform these actions he needs to possess certain attributes (e.g., certain tools, knowledge of the relevant actions, etc.). The same pattern applies in the case of perception. Not all sets of sensory stimuli can be processed into perceptual awareness; when a set of stimuli can be so processed, an organism needs to do specific things to process it; and the organism needs to have certain attributes in order to perform the processing; most obviously, it needs certain organs in a certain condition.[11]

We would expect the same points to apply in the case of concepts. Plausibly, not all groups of things are susceptible to unitary thought and, in order to think unitarily of the groups which can be so thought, a thinker may need to perform a certain process and to possess certain attributes. We should expect, then, a theory of concepts (1) to have something to say about what needs to be true of a group of things in order for them to be instances of a concept, (2a) to tell us what a thinker needs to do in order to think of these things unitarily, and (2b) to tell us what needs to be true of the thinker in order for him to do this.[12] (We can admit the possibility, as a limiting case, that any random group can be unitarily thought. A theory that held this *prima-facie* implausible view would still be a theory of concepts.)

There are, of course, differences between the four parallel explanatory problems that we have been considering. The most obvious difference is that concepts and perception, as opposed

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process of hydrolysis, which is facilitated by certain hydrolytic enzymes. The possession of these enzymes, then, constitutes (in part at least) the animal's ability to digest the food.

[11] The work of Gibson is instructive here. Consider his comment on the structure of ambient (as opposed to radiant light): "If the ambient light were unstructured or undifferentiated, it would provide no information about an environment, although it would stimulate the photoreceptors of an eye" (1986 64). See his sixth chapter, for a discussion of the structure of the light which enables visual perception and his 1966 book for discussions of the other senses.

[12] These two parts of the Problem of Concepts—(1) what needs to be true of a group of things for them to be instances of a single concept, and (2) how is it that we think of such groups unitarily—correspond roughly to two different questions concerning universals that were isolated by Aaron (1939, cf. 1952 vii), and which Armstrong (*Realism and Nominalism* 1978a 26) formulates as follows: "(a) what are concepts and how do they apply to the things which fall under them; and (b) what constitutes the unity of a class of things which are all said to have the same property or be of the same kind". Armstrong's (b) corresponds to my (1) and his (a) to my (2). Unlike Armstrong, I do not think that these problems can be treated in isolation from one another. Rather, they must be treated as components of a single, wider problem, which is best understood as a problem about concepts. See §§1.3.1-2 below.

to baking and metabolism, are closely interrelated abilities, which are both integral to human knowledge. The things that we perceive are (or at least can be) instances of concepts.[13] This relationship is something that has been explained differently by different theories of concepts and of perception. On some views of concepts, for example, concepts are based on perception in the sense that the instances of concepts must stand in a certain sort of relationship that can be perceptually detected (or detected by the use of prior concepts that have their basis in some relationship that can ultimately be perceptually detected). On other theories of perception, the ability to perceive objects (rather than experiencing either an incoherent flux of sensations or nothing at all) is explained by prior possession of concepts, which impose order on what would otherwise be chaotic perceptual data. There is a respect, however, to which we will now turn, in which the Problem of Concepts is unlike these questions about perception and more like questions we might ask about baking or carpentry.

1.1.3 The normative import of the Problem

Perception and metabolism occur automatically whereas baking is something we do deliberately. Consequently, theories of perception and metabolism are not normative or action-guiding in the way that "a theory of baking" is.[14] Theories of perception and metabolism are normative in one sense: they can provide the means to tell whether a certain person is perceiving or metabolizing properly. However, theories of perception and metabolism do not serve as standards to which one can refer in directing one's perception or metabolism, because *one does not direct one's perception or metabolism* as a volitional agent. At best, we have a sort of indirect influence over these processes (and theories can occasionally be helpful in telling us how to exercise this influence). The contrast here with baking is clear. A baker bakes deliberately, and during the process he must make myriad decisions about, e.g., how much flour to knead into the dough,

[13] Not all instances of concepts are perceived or even perceptible. Many of the instances of a given concept, e.g., "stone" may have never been perceived by anyone and there are concepts for things that cannot be perceived (e.g., electrons). Moreover, many instances of concepts are conceptualized sub-groups rather than individuals. For example, man and horse are instances of "animal".

[14] Partially for this reason, it is perverse to speak of a "theory of baking". Baking is, after all, an art. But we do have *theories* that are normative in precisely this sense—for example, moral theories.

when to stop kneading, how high to set his oven, etc.[15] To make the right decisions, he must know *how to bake*—he must know what ingredients can be turned into bread and how they can be transformed into bread. Henceforth I will use "normative" in the sense in which it is applicable to baking-knowledge but not to a theory of metabolism. A theory or problem is normative if and only if it is a theory or problem about *how to* proceed.

The Problem of Concepts is normative, at least in part. The formation and use of concepts is not always automatic. Different people form and use concepts differently, and can give or request reasons for their differing policies. We can evaluate these reasons and think about whether to accept or employ a given concept in a given way. For example, people differ on whether or not we should have a concept "terrorism", on how this concept should be defined, on whether terrorism as such is immoral, and on whether certain individuals and organizations are terrorists. Reasons can be requested or given for any of the positions taken on any of these issues. How these reasons should be assessed, and, therefore, which answers one should accept, depends on how The Problem of Concepts is to be resolved.

This point may be clearer if we distinguish several types of questions on which theories of concepts bear, and discuss each individually. Our list of points on which people may differ concerning terrorism included four types of issues: (1) whether a given concept is proper, (2) what the definition of the concept is, (3) whether a certain attribute belongs to instances of the concept, (4) whether a given thing is an instance of the concept. I will take these four questions up in reverse order.

We constantly face questions about whether things are instances of concepts. For example: "Was Yasser Arafat a terrorist?" "Is a fetus a person?" and "Is abortion murder?" How these questions are to be answered depends on *what, in general, makes something an instance of a concept*. Consider, for example, the consequences of two extreme positions on the Problem of Concepts. If concepts are mere linguistic conventions then whether a fetus is a person is a matter of how the word "person" is used, and it can be settled either by lexicography or by a sort of collective stipulation. Alternately, if concepts are grasps of transcendent Forms, then whether a

[15] In *Physics* II.8, Aristotle tells us that "art does not deliberate" (199b28), and it is true that a baker can have many of the relevant decisions and procedures automatized so that he does not need to deliberate during the course of making his bread. But, even if so, the fact remains that these are things about which he could deliberate, and—likely—they are things about which he (or someone) had to deliberate in the past.

fetus is a person depends on whether it stands in the requisite relationship to the Form, and determining this may require some sort of intuitive knowledge of the Form.

When we think about whether abortion is murder or whether emeralds are green, we make and assess claims that are supposed to hold true of indefinitely large pluralities of differing objects—different procedures performed on different women in different locations for different reasons, different gems of different sizes and shapes discovered in different locations at different times, etc. A theory of concepts will explain what it is to make a *unitary claim* about such a plurality, and such a theory will have implications for the conditions under which such claims are justified. Different theories of what makes the instances of a given concept instances will have implications for the conditions under which we can infer that all the instances will have characteristics known to be possessed by certain instances. If, for example, the instances all count as instances because they share some "deep structure," perhaps such inferences can never be certain until the relevant characteristics can be shown to result from the shared structure. Also, one's theory of concepts will determine (in part at least) whether one subscribes to an analytic/synthetic dichotomy, which will, in turn, have a pronounced influence on how one thinks that claims of different sorts are to be validated.

On certain theories of concepts, definitions will play a significant role in determining what can be predicated universally of a concept's instances and in identifying instances of the concept. One's theory of concepts will also influence one's views on when definition is possible and necessary, on what forms a proper definition can take, and on when definition is even possible. If, for example, having a concept is a matter of knowing a set of necessary and sufficient conditions for distinguishing instances,[16] then a person could not understand a proposition unless he was capable of defining its constituent concepts by specifying necessary and sufficient conditions for each. If, alternately, having a concept is a matter of knowing a set of paradigmatic instances and of having some ability to apply knowledge from them to derivative cases, then one would not need to be able to define a concept in this way in order to understand propositions containing it.[17]

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[16] This position is referred to as the "Classical Theory" in the psychological literature on concepts. See Margolis and Laurence 1999 8-27.

[17] On this sort of "Prototype Theory", see Margolis and Laurence 1999 27-43; also Smith and Medin 1999.

There are many concepts whose propriety is in question. When philosophers debate, for example, whether there are analytic propositions, they are not usually asking whether there are any instances of a certain concept, but whether the concept itself is proper. I've already alluded to the controversial decision by Reuters news service to abandon the word "terrorist" on the grounds that "One man's terrorist is another man's freedom fighter"—i.e., on the grounds that no objective distinction can be drawn between terrorists and non-terrorists.[18] Stanly Fish defended this decision on slightly different grounds, claiming that the word is "unhelpful", because it "prevents us from making distinctions".[19] Both of these reasons for rejecting the concept rest on presuppositions about what concepts are and how they're supposed to function. Arguments about the propriety of concepts are not limited to philosophy and politics. Scientists have abandoned such concepts as "bilious" and "sublunary", and it is generally acknowledged that there is something defective about putative concepts like "grue" (a term coined by Nelson Goodman to apply to all things that are green and first examined before a certain time or blue and first examined thereafter).[20]

Different theories about what we're doing when we think unitarily about pluralities will yield different standards for which concepts are proper and which improper. For example, a theorist who held that we are able to think unitarily of the many instances of a concept only because they and only they share some feature or set of features would hold that "terrorist" is a concept if and only if "terrorist" can be defined in terms of some such feature(s). If so called "terrorists" do not share such a feature(s), the theorist would hold that "terrorist" is not a concept, but some sort of cognitive miscarriage (as a burnt mass of unleavened dough is a miscarriage of baking rather than a loaf of bread). Such a theorist would hold that thoughts about "terrorists" involve some sort of confusion. Someone who held a contrary view of concepts might come to a contrary conclusion.

Granted that it is possible to think unitarily about a certain plurality of differing things, there may still be a question of whether it is proper to think about them in this way. Someone might hold, for example, that it would be possible to think about "grue" objects in much the way that we now think of green ones, but that it would be improper to think in this way because it

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[18] Kurtz 2001.
[19] Quoted in Rothstein 2002.
[20] Goodman 1983 74.

would frustrate attempts to gain inductive knowledge. Even if it would not be possible to form so perverse a concept as "grue", the history of science abounds with plausible cases of concepts that were ultimately abandoned because they impeded induction. Some theories may treat these concepts as defective *qua* concepts**.** Others might view their tendency to stultify cognition as incidental to their nature as concepts. The same applies to other sorts of considerations that might be thought relevant to the propriety or impropriety of concepts. For example, one might ask whether (and in what way) compatibility with moral or social programs is relevant to a concept's quality as a concept.[21]

In telling us what concepts are, we would expect a theory of concepts to explain what makes concepts possible and proper (both in general and in any particular case). We need such a theory in order to guide our thinking and to provide a standard for evaluating claims to knowledge. Thus, the Problem of Concepts is a problem about cognition, which is pressing insofar as that cognition is answerable to norms. For this reason, I take the Problem to belong primarily to epistemology rather than to metaphysics (or to psychology or the philosophy of mind or language).

However, the Problem of Concepts is not exclusively an epistemological problem. Presumably, mind-independent facts about a concept's instances are relevant to their conceptualization. Different theories of concepts have different accounts of what these facts are. Some theories posit whole classes of theoretical entities to explain concepts or else employ for this purpose entities posited on some other grounds. Thus, the problem has a pronounced metaphysical side—more pronounced on some theories than others—and one's thought about concepts and one's ontology will exert a reciprocal influence on one another.

Because the epistemological problem is intertwined with metaphysics (as, arguably, all epistemological problems are), and because of the problem's fundamentality, different thinkers have confronted it in different forms and tried to solve it in different ways. Not all of the parties to controversies I listed in the Problem's resumé are motivated by explicitly epistemological concerns. I do think, however, that the problem laid out in this section is at the root of all these

[21] Notice a parallel here too with metabolism. Among the many things that can be metabolized, some are better foods than others for reasons having to do with the nature of metabolism—they can be digested more easily or are more nutritious—, others are good or bad for other reasons. For example, it is wrong to eat human flesh, not because it is difficult to digest, but because it is immoral, and it has been maintained that morality also prohibits us from eating animal flesh, or even beans. Or, someone might argue that Brussels sprouts are a bad food, despite their nutritional value, because of their taste.

controversies. To prove this claim, I would need to address each controversy individually and that would take me far beyond the scope of my present project. However, since I will be using some of the vocabulary familiar from discussions of the Problem of Universals, I need to show that I am entitled to this vocabulary, and, to do this, I need to show that the Problem of Concepts has at least some claim to lie at the root of the "Problem of Universals".

Moreover, I need to show that Aristotle in particular was concerned with the Problem of Concepts. While it can hardly be denied that he held views on issues that are germane to the controversies in the Problem's resumé, it may be thought that he is entirely unconcerned with concepts but is interested rather in some entirely distinct metaphysical problem concerning the existence and nature of universals. I need to show that this is not the case.

I will take up these two tasks in the remainder of this chapter. In §1.2, I will show how the Problem of Concepts motivated (in part at least) Plato's Theory of Forms and how Aristotle recognized this and took the Problem seriously, both in his response to Plato's Theory and in his own philosophizing.

In addition to answering the charge that my conception of the Problem is anachronistic, this section will provide support for my thesis that the Problem of Concepts is fundamental to the Problem of Universals. Insofar as Plato's Theory of Forms is a paradigm case of a solution to the latter problem, any evidence that it was motivated by the former supports my general fundamentality thesis. I will advance some further considerations in favor of this thesis in §1.3, where I will also develop its implications for how we should understand the traditional schools of thought on the Problem of Universals.

1.2 SOCRATES, PLATO AND THE PROBLEM OF CONCEPTS

Aristotle's explanation of the line of reasoning by which Plato developed his Theory of Forms corresponds with an often-discussed thread running through the Early and Middle Dialogues.[22]

[22] I capitalize, because I am using these terms as proper names for groups of dialogues, rather than as descriptions. I do this because I find the distinction between the dialogues significant, but do not want to commit to any thesis about their order of composition. Whenever the dialogues were written they can be divided based on their content, and the groups stand in a loose *logical order*, with later dialogues presupposing themes, concerns and theses that are

Let us begin, then, with Aristotle's account. Here is a composite of what he tells us in *Metaphysics* A.6 and M.4:

> Socrates sought "the universal" (τὸ καθόλου)[23] in ethics and was "the first to concern himself with definitions (ὁρισμοί)"[24] and to "define universally" (ὁρίζεσθαι καθόλου).[25] Plato agreed with Socrates that such definitions are necessary, but thought that the "common definition" (τὸν κοινὸν ὅρον)[26] could not be of perceptible things, because Plato subscribed to the Heraclitean doctrine that perceptible things are in flux and cannot be known. Consequently, he posited forms (ἰδέαι) to serve as the objects of definition.[27] In so doing, he made definitions and universals "separate" (χωριστός) from the perceptible things.[28]

We must begin, then, with Socrates. The Socrates in question is the protagonist of Plato's Early Dialogues. Aristotle's discussions of the historical Socrates (in the *Metaphysics* and elsewhere) correspond almost perfectly with Plato's portrayal. This correspondence is one of several reasons for accepting Plato's characterization as historically accurate.[29] For our purposes, however, we need not concern ourselves with the question of historical accuracy so long as we accept that Aristotle's Socrates and that of Plato's Early Dialogues are the same. I will refer to this character

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introduced, motivated or argued for in earlier dialogues. Different scholars divide the groups somewhat differently, but Vlastos' classification is as close to orthodoxy as any. It is as follows (Vlastos 1991, 46-7):

> Group I. The dialogues of Plato's earlier period: The Elenctic Dialogues listed in alphabetical order: *Apology*, *Charmides*, *Crito*, *Euthyphro*, *Gorgias*, *Hippias Minor*, *Ion*, *Laches*, *Protagoras*, *Republic* I {...}
>
> Transitional Dialogues (written after the Elenctic Dialogues and before the dialogues in Group II), listed in alphabetical order: *Euthydemus*, *Hippias Major*, *Lysis*, *Menexenus*, *Meno* {...}
>
> Group II. The dialogues of Plato's middle period, listed in probable chronological sequence: *Cratylus*, *Phaedo*, *Symposium*, *Republic* II-X, *Phaedrus*, *Parmenides*, *Theaetetus* {...}
>
> Group III. The dialogues of Plato's latest period, listed in probable chronological sequence: *Timaeus*, *Critias*, *Sophist*, *Politicus*, *Philebus*, *Laws* {...}

When I speak of "Early Dialogues" I mean the dialogues in Vlastos' Group I, with the exception of the final two thirds of the *Meno* (beginning with Meno's comment at 80a), which I will group with the middle dialogues. Vlastos has a useful discussion of the differences in content between Early and Middle Dialogues, on 47-49.

Discussions of the development of the Theory of Forms that have focused on the thread identified by Aristotle include Ross 1951, Wedberg 1971, White 1992 278-9, Dancy 2001, and Gerson 2002.

[23] *Metaphysics* 987b3.

[24] 987b4.

[25] 1078b18.

[26] 987b6.

[27] 987b8.

[28] 1078b30.

[29] See Vlastos 1991 91-98. For an alternate view see Kahn (1992b), who holds that Aristotle naively took Plato's portrayal to be accurate and based his own account on it.

as "Socrates" and will contrast his views and methods to the Platonic[30] views and methods embodied by the Socrates of the Middle Dialogues.

1.2.1 Socrates' "What is F?" question

Socrates does not speak of definitions or universals as such.[31] When he characterizes the objects of his searches at all, he uses such words as "εἶδος" and "ἰδέα" (both of which I will translate "form") and "οὐσία" (which I will leave untranslated).[32] Even these characterizations are comparatively rare. Most often Socrates evinces his interest simply by posing questions. For example: "What is courage?" ("τί ἐστιν ἀνδρεία;" *Laches* 190e), "What do you say is the pious and what the impious?" ("τί φῂς εἶναι τὸ ὅσιον καὶ τί τὸ ἀνόσιον;" *Euthyphro* 5d) "What do you say that virtue is?" ("τί φῄς ἀρετὴν εἶναι;" *Meno* 71d), or "What do you think a sophist is?" ("τί ἡγῇ εἶναι τὸν σοφιστήν;" *Protagoras* 312c).[33] In all these cases Socrates is asking what something is ("τί ἐστιν"). In order to speak in general about this sort of question without making any suppositions about the nature of the object inquired into, it is helpful to state the question as: "What is F?"

When we do this, we notice that the terms for which "F" stands are grammatically diverse. In the examples from the *Laches* and the *Meno* it stands for abstract nouns formed from adjectives, in the *Euthyphro* example it stands for a neuter singular adjective proceeded by the definite article, and in the *Protagoras* example for a singular masculine noun proceeded by the definite article (though, in English, it's more naturally rendered by the indefinite article). In each case, the term is singular, but the knowledge sought in terms of it is supposed to apply to multiple things. In each case there are many Fs (or F-things or things-with-F),[34] and knowledge

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[30] In calling these ideas "Platonic", I don't mean to insist that Plato himself endorsed them (though that is certainly the most natural thing to think); I mean only that Plato was their author.

[31] The early dialogues do contain some uses of "ὅρος" (e.g. *Lysis* 209c7, *Hippias Major* 283b2) and "ὁρίσεσθαι" (e.g. *Euthyphro* 9c7, *Laches* 194c8, *Charmides* 163d7), but these occurrences are best understood as metaphorical usages of the word in its original, geographical meaning.

[32] In my exposition, I use "form" to denote the objects that Plato calls "εἴδη" and "ἰδέαι". When quoting Plato (and Aristotle's discussions of Plato), and in other context where it is necessary to distinguish between the two words, I will leave the terms in Greek. I discuss the Socratic/Platonic antecedents of Aristotle's coinage of "καθόλου" in §2.1.

[33] See also *Charmides* 159a, *Laches* 190b, and *Hippias Major* 286d.

[34] When I speak of "Fs", I intend to cover the whole disjunction.

of what-F-is is supposed to apply to all of them. Why does Socrates seek this knowledge, and what precisely is it to know (or to be) *what F is*? I will address the first of these questions in the remainder of §1.2.1 and turn to the second in §1.2.2.

Socrates often tells his interlocutors why he wants to know what F is, and he sometimes comments on the negative consequences of lacking this knowledge. Let's consider some of the relevant texts:[35]

> T1. *Meno* 71a-b: I am so far from knowing whether virtue can be taught or not that I do not even have any knowledge of what virtue itself is... If I do not know what something is, how can I know what qualities it possesses? Or do you think that someone who did not know at all who Meno is could know whether he is good-looking, rich, or wellborn, or the opposite of these?[36]

> T2. *Meno* 86d-e: If I were directing you, Meno, and not only myself, we would not investigate whether virtue is teachable or not before we investigated what virtue itself is. But because you do not even attempt to rule yourself, in order that you may be free, but you try to rule me and do so, I will agree with you—for what can I do? So we must, it appears, inquire into a quality of something when we do not yet know what it is.

> T3. *Meno* 100b: It follows from this reasoning, Meno, that virtue appears to be present in those who possess it as a gift from the gods. We shall have clear knowledge of this when, before we investigate how it comes to be present in men, we first try to find out what virtue in itself is.

> T4. *Laches* 190b-c: Isn't it necessary for us to start out knowing what virtue is? Because if we are not absolutely certain of what it is, how are we to advise anyone as to the best method of attaining it? (Cf. 189d-190b)

> T5. *Protagoras* 361c-d: Now, Protagoras, seeing that we have gotten this topsy-turvy and terribly confused, I am eager to clear it all up, I would like us, having come this far, to continue until we come through to what virtue is in itself, and then to inquire into whether it can or cannot be taught.

> T6. *Protagoras* 312c: You are about to hand your soul over for treatment to a man who is, as you say, a sophist. As to what exactly a sophist is, I would be surprised if you really knew. And yet, if you are ignorant of this, you do not know whether you are entrusting your soul to something good or bad.

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[35] These translations from Plato are based on those in Cooper 1997.

[36] I've followed what seems to be a scholarly convention of taking liberties in abbreviating this passage. The portion before the ellipsis is part of a statement that Socrates ascribes hypothetically to "everyone" in Athens, where as the portion after the ellipsis is in Socrates' own voice. But, since Socrates explicitly includes himself in the Athenian's epistemic poverty, no harm is done by abbreviating the statement in this way.

T7. *Gorgias* 463c: I will not answer him whether I think rhetoric is fine or mean until I answer first what it is. For it would not be just, Polus. (cf. 462cd)

T8. *Republic* 354b-c: The result of the discussion, as far as I'm concerned, is that I know nothing. For when I don't know what justice is, I'll hardly know whether it is a kind of virtue or not or whether a person who has it is happy or unhappy.

T9 *Hippias Major* 286c-d: Just now someone got me badly stuck when I was finding fault with parts of some speeches for being foul, and praising other parts as fine. He questioned me in this way, really insultingly: "Socrates, how do *you* know what sorts of things are fine and foul? Look, would you be able to say what the fine is?"

T10. *Hippias Major* 304e: How will you know whose speech—or any other action—is finely presented or not, when you are ignorant of the fine?

T11. *Lysis* 233b: We have made ourselves ridiculous, Lysis and Menexenus—I, an old man, and you. For those who go away will say that we think we are one another's friends—for I put myself in with you—but what a friend is we have not been able to discover.

T12. *Charmides* 159a: To help us decide whether {temperance} resides in you or not, say what in your opinion temperance is.[37]

T13. *Euthyphro* 6e: Tell me then what this form {viz. piety} itself is, so that I may look upon it and, using it as a model, say that any action of yours or of another's that is such as it is pious, and if it is not that it is not.[38]

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[37] Socrates stated goal in asking Charmides what-temperance-is is to determine, jointly with Charmides, whether Charmides is temperate; so this is a case of asking the "What is F?" question in order to determine whether a given thing is an F. But this may seem to be a defective case, depending on how one understands Socrates and Charmides' project. At 158e-159a Socrates and Charmides accept the premise that the presence of a virtue in a person's soul leads that person to have opinions about the virtue. This may make it seem that their goal is to determine whether Charmides is temperate directly by testing his opinions about temperance, on the premise that if his opinions do not stand up to scrutiny he cannot be temperate. If this is the procedure, then it is the quality of Charmides' answers rather than knowledge of what temperance is that will be used to determine whether Charmides is temperate. If so, "What is F?" is asked in the *Charmides* for a different reason than it is asked in the *Euthyphro* and *Hippias Major*. However, this is not Socrates and Charmides' procedure, or at least it is not what Charmides understands the procedure to be. When he acknowledges (at 176ab) that he does not know what temperance is, he sees his ignorance as a barrier to determining whether he is temperate rather than as a proof that he is not. Socrates does not correct him on this, and Socrates agrees when Charmides claims (at 161c) that it does not matter that he learned the definition then under discussion from a wise man rather by introspection on his own state. More generally, Socrates' refutations of Charmides' accounts of temperance are not taken as evidence that Charmides lacks the virtue. So the inquiry into what-temperance-is is meant to be a preliminary to a discussion of whether Charmides has the virtue, rather than a test of whether he has it. The relevance of the premise that a virtue causes its possessors to form opinions about it is that this premise underwrites a method for inquiring into what temperance is—viz. probing the opinions of a young man who is reputed to have it. In this connection, it is worth noticing that the advice Socrates gives Charmides at 160d shows that he is not here supposing that what temperance is would be immediately clear to a temperate man, only that a temperate man would be ideally situated to think about what temperance is, because of his intimate acquaintance with the virtue's effects.

In each case, knowledge of what-F-is is sought because of the relationship in which this knowledge stands to some other piece of knowledge that Socrates is seeking or which his interlocutor claims to possess. I'll call this other knowledge the "target knowledge". In some cases (T1-T8) it is knowledge of F's attributes; in the others (T9-13) it is knowledge of whether a given thing is an F. In different texts, different relationships are asserted between the target knowledge and knowledge of what-F-is. In T1, T4, T6, T8, and T9-T11, Socrates claims that knowledge of what-F-is a necessary condition for the target knowledge.[39] In T13 and T3, he may be claiming that it is a sufficient condition. In T2, T5, T7, and T12, he simply endorses the procedure of inquiring into what-F-is before seeking the target knowledge.[40]

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[38] It may be worth noting that this is not the reason Socrates gives when he initially asks Euthyphro to teach him about piety (at 5b). There he says that he wants to tell his accuser Meletus that he has learned about piety from Euthyphro. This is supposed to serve as evidence of Socrates' abiding respect for knowledge of the divine and of his attempt to address Meletus' concerns that he was a theistic innovator. Therefore, what Socrates hopes to learn from Euthyphro is supposed to make him pious, and the attempt to learn this is supposed to show that he is interested in divine things.

[39] T9 and 10 are in the form of questions rather than statements, but the questions are clearly challenges and the challenge is incoherent unless we take the challenger to assume that someone would need to know what the fine is in order to judge properly that a speech or action is fine.

Brickhouse and Smith (1994, 51) argue that T11, if taken to contain a claim about something's presupposing a knowledge of what F is, commits Socrates to the principle that even thinking about F requires knowing what F is. They find this principle "absurdly strong," because it is "foolish" to suppose that that one is not even entitled to think that something is F without knowing what F-ness is. If this were true, there is little or nothing that anyone would be entitled so much as to think about any moral issue or course of action.

But to say that one is not entitled to think that one is a friend is a quite different thing from saying that one is not entitled even to entertain the thought that one is a friend. To think that one is a friend is to be prepared to assert that one is, and this is the situation in which Socrates, Lysis and Menexenus find themselves. It is because they are prepared to make the assertion that they are ridiculous and, presumably, this is because they are not in a position to know what they are asserting. There is no reason to bristle at the thought of attributing to Socrates the position that most people are not entitled to think moral propositions in the sense of being prepared to assert them. Socrates is notoriously skeptical of moral assertions. But it simply does not follow from the ridiculousness of someone's thinking a given proposition that the person is not entitled to consider the proposition at all. Moreover, Brickhouse and Smith's alternative reading of T11 is unsatisfactory. They claim that Socrates "is merely pointing out that they [viz. Socrates, Lysis and Menexenus] appear ridiculous for their inability to understand what they take themselves plainly to instantiate". But nothing in T11 ties the friends' ridiculousness to how "plainly" they are friends. The point made is that they are ridiculous for taking themselves to be friends without knowing what a friend is, and it is unclear why this should be ridiculous unless, in general, it is ridiculous to take something to be F without knowing what F is.

[40] The following table may be of some use in visualizing this information:

		Relationship between knowledge of what-F-is and target knowledge		
		Necessary condition	Sufficient condition	Prior in order of inquiry
Nature of the target knowledge	Knowledge of F's attributes	T1, T4, T6, T8	T3	T2, T5, T7
	Knowledge of whether a given thing is F	T9, T10, T11	T13	T12

For the most part these texts assert relationships between two specific pieces of knowledge (e.g. knowledge of what-virtue-is and knowledge of whether virtue can be taught) rather than general relationships between types of knowledge (e.g., knowledge of what-F-is and knowledge of F's attributes). However, it is clear that there must be some general epistemic principle(s) at work here. It is difficult to take T1 as anything other than an endorsement of the principle that *knowledge what-F-is is necessary for knowledge of F's attributes.*[41] The ascription of this principle to Socrates economically explains his reasoning in T2-T8. T6 and T8 in particular contain what seem to be enthymemes with this principle as their suppressed major premise. A second principle, that *knowledge of what-F-is is necessary for knowledge of whether a given thing is an F*, seems to be the suppressed major premise of enthymemes in T9 and T10, and it explains Socrates position in T11. Therefore, we can make sense of Socrates reasoning in T1-T11 by ascribing to him the conjunction of these two principles. This conjunctive principle, often called "The Priority of Definitions Principle", can be stated as follows:

> Knowledge of what-F-is is a prerequisite for knowledge of F's attributes and of what things are Fs.

This principle goes some way towards explaining T3 and T13 in which Socrates seems to say that knowledge of what-F-is is sufficient for the target knowledge. Socrates can't be claiming that knowing what-F-is is sufficient for knowing of every F that it is an F. It would be absurd to assume that by looking to the form of piety, one could determine whether a certain man's actions were pious even if one did not know what actions the man took. And certainly, on Socrates premises, knowing what piety is could not enable one to know whether impartial prosecution was pious if one did not know what prosecution was. Presumably, then, it is only under certain conditions that knowing what-F-is is sufficient for knowing which things are F's and what attributes F has. Plausibly these conditions are those under which one has already satisfied all the other necessary conditions for the target knowledge.

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[41] Brickhouse and Smith (1994 52) claim that T1 doesn't actually commit Socrates to this principle because it is a question. "Meno makes the commitment; Socrates merely solicits it". But Socrates does not merely solicit the commitment; he presupposes the principle when he sets up a challenge to the possibility of knowing F's attributes without first knowing what F is, and he then argues for the principle by reducing the idea that the challenge can be answered to absurdity. Santas (1979 123) manages to treat T1 as ambiguous in its range only by ignoring the latter half of it, which is perfectly general. This sort of range-restricting argument is plausible however for *Laches* 189d-190b (the passage immediately preceding T4), which does endorse a more general form of the claim made in T4 and could be taken as additional support for the principle endorsed by T1.

It was once conventional wisdom that Socrates held the Priority of Definition Principle.[42] In the past several decades, a number of scholars have challenged this attribution on two grounds.[43] First, they maintain that texts do not require it. Second, they claim that it would be uncharitable to ascribe the principle to Socrates, because it has implications that are implausible in their own right and contrary to Socratic doctrines and methods. Some of these scholars have attributed the Principle to Socrates in the *Meno* and *Hippias Major*, where the evidence for it (T1-2 and T9-10) is strongest, while denying that the Socrates of the other Early Dialogues held it.[44] Defenders of the attribution have worked to resolve the apparent incompatibilities with Socrates' other views and have argued that the textual evidence is strong enough to bear out the ascription.[45] For my part, I do not think that the *Meno* or *Hippias Major* texts can be plausibly interpreted without ascribing the principle to Socrates, and, given this and the need for some principle to account for Socrates' position in the other Early Dialogues, I think the most plausible reading is to ascribe the Principle to Socrates throughout.[46] I am not convinced by the arguments from the need for charity in part because I am circumspect about the proper role of charity in interpretation,[47] and in part, because I don't think that the Principle is as problematic as it is sometimes thought to be.[48]

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[42] See Burnet 1924 37, Shorey 1933 157, Taylor 1937 47, Robinson 1951 51, Ross 1951 16, Crombie 1962 57, and see Geach 1966, who famously dubbed the principle the "Socratic Fallacy".

[43] See, e.g., Santas 1972 and 1979 115-126, Beversluis 1992, Brickhouse and Smith 1994 Chapter 2, Vlastos 1985, and Nehamas 1987.

[44] Vlastos 1985 23 n. 54 and Beversluis 1992 11-12. The *Meno* is generally acknowledged to mark a transition between the Early and Middle Dialogues, and the *Hippias Major* is also often thought to be transitional. (On this last, see Woodruff 1982 93.) So Vlastos and Beversluis view the Principle as a later, Platonic development. T8 poses a difficulty for their interpretation. It is as strong as the passages from the *Hippias Major*, but comes from *Republic* I, which they take to be early. Vlastos (1985 26 n.65) argues that T8 is a later addition to *Republic* I. I agree with Benson (1990 26-7) that his argument is implausible. However, as part of a larger whole, if *Republic* I is an early dialogue, it has to be treated as something of a special case, so I do not think T8 is fatal to the Vlastos-Beversluis position.

[45] See especially Benson 1990, also Prior 1998 and Dancy 2004 35-64.

[46] The alternative strategy is to attempt to find some weaker principle to account for T4-7 and T11-13. Typically, it is claimed that knowledge of what-F-is is only necessary for the target knowledge in difficult or controversial cases. (See Beversluis 1992 214, Santas 1972 115-135, and Nehamas 1987 278.) But there is no independent reason to think that Socrates distinguishes between the relevant types of cases. (Benson [990 31-33] is useful on this point, though I see no basis for his claim that all these distinctions "rely on an appeal to common or ordinary opinion".) In general, it is hard to believe that Socrates held some determinate principle that is more subtle than the later, "Platonic" principle; but it is quite plausible that Socrates may have been operating with a vague implicit principle, which Plato later articulated too crudely.

[47] If carried too far, the demand for charity turns any refutation of a view into evidence that no one ever held it. If two interpretations are otherwise equally well supported, it is best to go with the one that casts the author in the best light, but the mere fact that a position leads to untenable consequences for a thinker does not constitute evidence that he did not hold it. Before it would qualify as evidence, we would also need reason to think that the untenable

The Principle does lead to one quite significant problem, but I think this provides evidence for the ascription of the principle to Socrates. According to the Principle, it would be impossible for a person (or group of people) to discover what F is either by considering things that they know to be Fs or by considering attributes that they know F to have. With these avenues of inquiry cut off, it is perplexing how someone who did not know what F is could discover it at all. Only once in the Early Dialogues do all the parties to a proposed inquiry into a "What is F?" question admit their ignorance, at the outset. I am referring, of course, to *Meno*

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consequences would have been apparent to the thinker himself. Socrates was "the first to concern himself with definitions", while we are the heirs to millennia of sustained inquiry into the subject; we do not insult him by supposing that some things that are obvious to us may not have been obvious to him. A second problem with charity, both monetary and interpretive, is that it can conflict with the demands of justice. In this case, by being excessively charitable to Socrates we run the risk of being unfair to Plato. Plato's use of the character Socrates as the proponent of the theory of forms in the Middle Dialogues indicates that he saw some continuity between this theory and Socrates' views in the Early Dialogues. The *Meno* in particular uses a problem in Socrates' methodology to motivate a set of new metaphysical and epistemological theses that are central to the philosophy of the Middle Dialogues. If we interpret the Early Dialogues so as to rid Socrates of this problem, we rob Plato of the credit for noticing the problem, we accuse him of gratuitously burdening Socrates with problematic theses, and we diminish the motivation for some of the Middle Dialogues' theses.

[48] Supposed problems with the Priority of Definition Principle include: (1) the Principle leads to a general skepticism that is both untenable in itself and inconsistent with Socrates' claims to knowledge; (2) the Principle leads to a skepticism about moral claims that is inconsistent with knowledge claims that Socrates occasionally makes (e.g. at *Apology* 28d-29b and *Euthydemus* 296e); (3) the Principle leads to an infinite regress because before one could know that a given term is part of a definition of F one would need to know its definition and so on; (4) Socrates' refutations of proposed definitions sometimes involve supposing that the definiendum has certain properties (e.g. that the fine is beneficial at *Hippias Major* 296c-d), when, according to the Principle, Socrates could not know the definiendum to have these properties before knowing its definition; (5) Socrates often refutes proposed definitions by giving counterexamples, and he encourages his interlocutors to consider examples in formulating definitions, when, according to the Principle, until one had a definition one could not know what things were examples of it. Space permits only a brief comment on each. (1) The Principle only leads to a general skepticism when combined with the premise that proper definitions are, in general, hard to come by, but there is no reason to suppose that Socrates holds this; when he gives a definition of "quickness" at *Laches* 192b, for example, he shows no sign of thinking this a rare accomplishment. (2) Independent of any concerns about the Principle it is difficult to reconcile Socrates' occasional claims to moral knowledge with his disavowal of knowledge and with the strict criteria he places on knowledge claims; only if these knowledge claims can be rendered otherwise unproblematic do they constitute a reason against ascribing Principle to Socrates. (3) There is no evidence that the regress problem occurred to Socrates, but if it did, he could have solved it (as many other philosophers later did) by claiming that there are certain indefinable items that serve as the starting-points for definition. In this connection, it is significant that the Principle requires that one know what-F-is before knowing further things about F; it does not necessarily require that one be able to give a proper definition of F. (4)/(5) In most of the cases where Socrates appeals to examples or characteristics of F in his arguments, he is dealing with an interlocutor who claims to know what-F-is. In such a context, Socrates need not know if putative examples and characteristics are genuine so long as he only raises them to test whether his interlocutor is willing to embrace the consequences of his own definition. Moreover, the claim that a given thing is an F or that F has a certain attribute might, while not qualifying as knowledge, still have a higher epistemic status for Socrates than a proposed definition of F. Consequently, Socrates might be justified in testing the definition against such a claim, so long as he does not regard the results of such testing as conclusive.

80c-e, and here the problem of how such an inquiry is possible is explicitly raised.[49] The problem is solved only through the hypothesis of reincarnation and recollection. The boldness of this solution suggests that Plato thought there was a serious problem with Socrates' position—and since Plato is Socrates' author, his opinion on the matter carries quite a lot of weight.

On the most plausible reading of the Early Dialogues, then, Socrates held the Priority of Definition Principle and sought an answer to the "What is F?" question because he thought that it a prerequisite for knowledge of what things are Fs and of F's attributes.[50] In the terminology of concepts, Socrates thinks that knowing a concept's definition enables knowledge of propositions in which that concept is the subject or predicate. The project of searching for definitions arises in the Early Dialogues because Socrates is seeking knowledge and evaluating claims to knowledge, because this knowledge comes in the form of propositions with concepts as their subjects and predicates, and because Socrates thinks that definitions are necessary for this knowledge. Why does Socrates think that one needs to know what-F-is before one can know what attributes F has and what things are Fs? How is a definition supposed to enable this further knowledge?

Many of Socrates' requests for definitions (e.g. T6, T9-10, T11) take the form of challenges posed to someone who claims to possess knowledge that Socrates thinks depends on the definition. This suggests that the definitions are required for the further knowledge because they would play some role in the justification of this knowledge. The idea would be that to know, e.g., that a given speech is fine, one would need to be able to defend the judgment that it is fine, and that this defense would be impossible without recourse to an account of what the fine is. Plausibly one would defend the judgment that the speech is fine by pointing out that the speech had some feature(s) specified in the definition of the fine. Similarly, one might use a definition of sophist to defend the judgment that sophists are good. If for example, a sophist is a teacher of virtue and virtue is good, then sophists are good (assuming that the teacher of something good is

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[49] The Socrates who answers this challenge is clearly no longer the Socrates of the Early Dialogues, but it is possible that some elements of his solution were held by the Socrates of the Early Dialogues. This is most plausible in the case of the distinction between true belief and knowledge, which a number of scholars have attributed to Socrates (e.g., Santas 1972 and Irwin 1977 40-41). But, while Socrates could have held this distinction, there is no direct evidence that he did and no reason to suppose that he was even aware of the problem.

[50] I will proceed on the premise that this reading is correct. Even if one rejects the reading, however, it is clear that Socrates sometimes seeks to know what-F-is because he thinks this knowledge is a necessary condition for some other particular piece of knowledge, and that, in general he thinks that accounts of what-F-is somehow enhance our abilities to identify Fs and determine their attributes. On this weaker reading, my later conclusions will still hold, but they may require some qualifications.

good). These justificatory arguments are deductive in form. And Aristotle seems to have thought that it was for the sake of such arguments that Socrates valued definitions:

> ...it was natural that Socrates should be seeking the what-it-is because he was seeking to deduce (συλλογίζεσθαι) and what a thing is is the starting-point (ἀρχὴ) of deductions. (*Metaphysics* 1078b24-50)

In fact, we often find Socrates arguing deductively from definitions. For example, in the *Apology*, Socrates' defense against the charge of impiety consists largely in showing his actions to be in service to the god, where "service to the gods" is accepted as the genus of piety in the *Euthyphro*.[51] His defense against Meletus' more specific charge of atheism involves a deduction from what is plausibly construed as a definition of spirit (δαίμων).[52] Another example can be found in the *Protagoras* (352a-6c), where Socrates reasons deductively from the definition of the good as pleasure to the impossibility of one's knowledge of the good being "overcome by pleasure". Socrates also reasons deductively at *Meno* 87b-c, where he shows that a definition of virtue as knowledge (along with the premise that all and only knowledge can be taught) would lead to the conclusion that virtue can be taught.[53]

Socrates' interlocutors are also eager to deduce answers from proposed accounts of what-F-is. For example, Euthyphro's first answer to "What is the pious?" is a general principle from which his particular putatively pious action follows:

> I say the pious is to do what I am doing now, to prosecute the wrongdoer, be it about murder or temple robbery or anything else, whether the wrongdoer is your father or your mother or anyone else; not to prosecute is impious. (E*uthyphro* 5de)

Similarly, Laches initially attempts to say what courage is by specifying conditions under which one can infer that a given man is courageous.

> If a man is willing to remain at his place in the ranks and to resist the enemy without running away, then you may rest assured that he is a man of courage. (*Laches* 190e)

Neither Euthyphro nor Laches yet understands that, in asking what F is, Socrates wants an answer that will apply to all Fs.[54] However, both already understand that the knowledge Socrates

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[51] 12e, though it is controversial whether this can be taken as evidence of Socrates' view.
[52] *Apology* 27c-e.
[53] Cf. *Protagoras* 361a-c.
[54] And their answers may not even be accurate within their narrow domains. Socrates shows signs of being skeptical of Euthyphro's answer and Laches' definition of courage admits cases of pseudo-courage—i.e. of standing one's ground against one fear out of a greater (and improper) fear. Socrates sometimes makes the point that too-narrow

is seeking should allow one to deduce that (at least some) Fs are Fs.[55] The problem with the interlocutors' accounts is that they do not allow us to deduce for any F that it is an F. Moreover, these accounts will themselves presumably be derivable from some prior account, from which we will also be able to deduce that other Fs are Fs. If we found an account of F from which we could deduce that any F was an F, then we would indeed have a starting-point for deductions about what things are Fs, and this does seem to be what Socrates is seeking. Such an account could also serve as a starting-point for deductive justifications of judgments about F's attributes, which would function like the earlier mentioned arguments from the *Meno* and *Protagoras*.

The eagerness of Socrates' interlocutors to deduce from their accounts of what-F-is, even before they have fully understood what Socrates means in requesting such accounts, brings out the naturalness of Aristotle's suggestion that Socrates' concern for definitions grows out of an ambition to deduce. If one makes a habit of discussing whether virtue possesses certain attributes and whether certain people and actions are virtuous, one will almost certainly encounter deductive justifications proceeding from alleged general characteristics of virtue. If one is in the business of evaluating these sorts of arguments, it is natural that one would eventually be led to seek the starting-points of this sort of argument.

1.2.2 The Socratic View of Concepts

What, then, constitutes a proper account of what F is, one that can serve as a starting-point for deductive justifications of claims that F has certain attributes and that certain things are Fs? For the beginning of an answer, we can consider how Socrates responds to inadequate accounts. Typically his interlocutors begin by giving an example of an F and Socrates replies that there are

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answers to the "What is F?" question admit imposter-cases. For example, in *Republic* I he shows that Cephalus' definition of justice as "speaking the truth and paying whatever debts one has incurred" admits the case of returning a maniac's weapon (331c-d). Definitions that are too narrow turn out to be mere approximations, even in their own domain.

[55] Similar points are made about Euthyphro and Laches' first definitions in Nehamas 1975 and Rabbås 2004. Both authors point out that the interlocutors do not confuse particulars and universals, that they have some understanding of what a definition is supposed to enable one to do, and that they are able to use their definitions to show certain Fs to be Fs. Nehamas says that Laches and Euthyphro give "ways of being" F, which are too narrow in that they do not cover all Fs. Rabbås considers Laches' first definition to be a definition by Paradigm, which fails because it does not enable us to see how a variety of cases of courage are relevantly similar to the paradigm case.

other Fs and that he is looking for is what is common to all Fs.[56] For example consider Socrates' response to Laches' first definition of courage:

> ...I wanted to learn from you not only what constitutes courage for a hoplite but for a horseman as well and for every sort of warrior. And I wanted to include not only those who are courageous in warfare but also those who are brave in dangers at sea, and ones who show courage in illness and poverty and affairs of state; and then again I wanted to include not only those who are brave at fighting fear but also those who are clever at fighting desire and pleasure, whether by standing their ground or running away... So all these men are courageous, but some possess courage in pleasures, some in pains, some in desires, some in fears. And others, I think, show cowardice in the same respects. ...what is courage and cowardice? This is what I wanted to find out. So try again to state first what is the courage that is the same in all these cases.
>
> ...suppose I asked what speed was, which we find in running and in playing the lyre and in speaking and in learning and in many other instances—in fact we may say we display the quality insofar as it is worth mentioning, in movements of the arms or legs or tongue or voice or thought? ...if anyone should ask me, "Socrates, what do you say it is which you call speed in all these cases," I would answer him that what I call speed is the power of accomplishing a great deal in a short time, whether in speech or in running or all the other cases.
>
> ...make an effort yourself, Laches, to speak in the same way about courage. What power is it which, because it is the same in pleasure and in pain and in all the other cases in which we were just saying it occurred, is therefore called courage? (*Laches* 191c-192b)

The point here is that there are many different things that we call courageous. Socrates is looking for the basis of our calling them all courageous. He takes this basis to consist in their all sharing some identical feature, which feature is the courage.

The same point is made repeatedly, and more explicitly, in the *Meno*. Here is one example:

> We always arrive at the many. Do not talk to me in that way, but since you call all these many {shapes} by one name, and say that no one of them is not a shape even though they are opposites, tell me what this is which applies as much to the round as to the straight and which you call shape, as you say the round is as much a shape as the straight... What is it then to which the name "shape" applies? ...I am

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[56] As we've already seen in the *Euthyphro* and *Laches*, the example needn't be a particular F, but merely a narrow sub-set of Fs. In no case does the interlocutor give a literal particular. Hippias comes closest to doing so (at *Hippias Major* 287e) when he claims that the beautiful itself is "a beautiful girl," notice however that he does not answer, e.g. "Helen"—while there are many beautiful girls there is only one Helen. The *Hippias Major* is also a partial exception to the pattern in that Socrates does not immediately respond to Hippias' overly narrow definition by citing fine things excluded by the definition.

> seeking that which is the same in all these cases... What is this which applies to the round and the straight and the other things which you call shapes and which is the same in them all? (*Meno* 74d-75a)

Whenever the "What is F?" question is asked, there are many differing Fs, and the person to whom the question is posed calls them all by a single name. Socrates is interested in the common element in all the Fs, which he thinks must be the basis of this common-calling. This common element in the many different Fs is what Socrates is seeking. He calls it an "εἴδος" or "ἰδέα". We've already seen examples of this usage from the *Euthyphro*; it is prevalent also in the *Meno*:

> Even if {virtues} are many and various, all of them have one and the same εἶδος which makes them virtues, and it is right to look to this when one is asked to make clear what virtue is. (72c)

As this last passage make clear, in asking "What is F?" Socrates is looking for a form—a common element in the many different F things that makes them all F and licenses us in calling them by a common name. The *Euthyphro* and especially the *Meno* stress that the form is identical in each of the many differing things in which it is found:

> Does {health} not have the same εἶδος everywhere, whether in man or in anything else whatever? (72d)

> If a woman is strong, that strength will be the same and have the same εἶδος {as a man's strength}, for by "the same" I mean that the strength is no different as far as being strength, whether in a man or a woman. (72e)

> ...what kind of thing do you say that godliness and ungodliness are, both as regards murder and other things; or is the pious not the same and alike in every action and the impious the opposite of all that is pious and like itself, and everything that is to be impious presents us with one ἰδέα insofar as it is impious. (*Euthyphro* 5cd)

Socrates' point is that whenever there are multiple Fs or F-things, they may differ in many ways, but there will always be some one identical element or characteristic possessed by each.[57] Socrates gives the example of bees. They are "many and varied and different from one another", but not *insofar as they are bees*. They are "no different in that regard," but differ "in some other respect, in their beauty, for example, or their size or in some other such way". There is something common to all bees "in which they are all the same and do not differ from one

[57] See *Hippias Major* (299c-303d) on the need for unity in this element.

another".[58] This common thing is what makes them all bees, and it is why we call each of them a "bee" (72b). Socrates view is, then, that when one calls multiple things by the same name, one is committed to the thesis that they share a form in common.

If taken in too literal a manner, Socrates' view would be foolish. According to it, English speakers would be committed to the view that honeybees and spelling bees share a form merely because we use the word "bee" to refer to both. Surely, this isn't the sort of thing that Socrates has in mind. The concerns that motivate his position are missing in the case of mere homonyms. Forms are supposed to be what one specifies in answer to a "What is F?" question, and this question is asked because it is supposed to underwrite knowledge of Fs—i.e., knowledge that applies to each of the many differing Fs. Nobody seeks or claims knowledge about "bees" that is supposed to apply to honeybees and spelling bees. But a beekeeper's knowledge is supposed to apply to queen bees, worker bees, and drones, and the form of bee is supposed to explain and justify his univocal speech and thought about these differing bees. The point here cannot be even that there is a single *word* univocally used; it must be that there is a single *thought*. Notice that in the relevant contexts Socrates will sometimes switch between synonyms (as in the case of "godly" and "pious" in the quote from the *Euthyphro* above).[59] Socrates' point, then, is about concepts—units or components of thought (expressed in language by words), each of which is (or enables) a unitary cognition of indefinitely many differing objects.

When someone employs a concept, Socrates takes him to be committed to the existence of a form shared by all the concept's instances. The form is supposed to be a common element that exists identically in each of the instances, and the concept is supposed to be an awareness of this common element.[60] Thus when we know about bees, what we know about is the οὐσία or form of bee, which is shared identically by all bees. Of course, in some sense, our bee-knowledge is about the many differing bees, but this knowledge applies to all these bees just insofar as the bees do not differ from one another, because it is knowledge *of something that exists identically in each bee*.

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[58] In this case, the element is referred to as the οὐσία of bee.

[59] Also, note that Socrates often distances himself from Prodicus who he sees as fussily concerned with words. (See *Charmides* 163d, *Laches* 197d, *Protagoras* 358e, *Euthydemus* 277e, *Cratylus* 384a-c, and *Meno* 75e.)

[60] The form is not any chance element present in all the instances, but some specific element. The instances may possess other identical elements, either accidentally or as a consequence of their possession of the form. In the *Euthyphro* (10e-11b), Socrates rejects "that which is loved by all the gods" as a definition of the pious, because being loved by the gods is a consequence of a thing's piety; it is a mere πάθος of the pious rather than its οὐσία.

At this point, some clarification is in order. If a concept is a unitary cognition of many differing instances, the multiple instances would seem to be the objects of the concept. On some views of concepts, however, we manage to think unitarily of the many differing instances only by thinking of some other object which stands in some relation to the many instances such that our thoughts about it apply derivatively to them. When discussing such theories I will speak of the "proper object" of a concept, treating the concept's many instances as objects only in an extended or derivative sense.[61] The proper object of a concept needn't be an instance of it (though on some views it may be an instance). On no view can the proper objects of concepts be their *only* instances, because the Problem of Concepts is precisely the problem of explaining how concepts can be cognitions of multiple instances. To claim that each concept has only one instance would be to deny that there are concepts at all. A theory only qualifies as a theory of concepts insofar as it attempts to explain how we can have unitary thoughts that are *of* or *apply to* pluralities of differing objects. Theories that explain this in terms of proper objects hold that our thoughts apply to pluralities of differing objects by being, in the first instance, of unitary, self-identical objects.

Socrates' view has this structure. On it, the proper object of our bee-knowledge is the οὐσία shared by all bees. Similarly, the proper object of the concept "virtue" is the form of virtue that is the same in the various virtues—in courage, justice, and wisdom and in the virtues of a man and of a woman. This form *is* virtue, and it is this form that we know about when we know, e.g., that virtue can (or cannot) be taught. I will call the idea that the proper object of a concept is an identical form shared by all its instances the "Socratic View of Concepts". I call it a "view", rather than a "theory", because "theory" connotes a level of self-consciousness that is not evident in the dialogues. Socrates was not trying to account for concepts by proposing some doctrine. Rather, in the course of seeking ethical knowledge and of evaluating claims to it, he *viewed* concepts in a certain, distinctive way.

Notice that this view goes some way towards explaining why Socrates might hold the Priority of Definition Principle. If what makes an F count as an F is its possession of the form-of-F, then it is natural to think that one could justify a judgment that a given F is an F only by showing that it possesses the form and to do this, one would presumably need to know the form.

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[61] Compare this with Aristotle's distinction between proper (ἴδιον) objects of sight in *De Anima* II.6. It is by seeing, e.g., the white that we see Diares' son.

Likewise, if this form is the proper object of all knowledge about F, then so long as someone did not know this form, he would literally not know what he was talking about when he asserted that F does (or doesn't) have a certain attribute. Such a person could no more know that F had the attribute in question than "someone who did not know at all who Meno is could know whether he is good-looking, rich, or well born, or the opposite of these". Indeed, it is doubtful that such a person could even *think* about F, which is why it is puzzling how he could inquire about it.[62]

In laying out the Socratic View of Concepts, I have emphasized the cognitive or epistemological role played by forms as the proper objects of concepts. In doing this, I do not mean to deny that the forms have a metaphysical status and play a metaphysical role. Socrates sometimes claims that *Fs are F by the form-of-F*, e.g. that "all fine things are fine by the fine" or that anything can be made F by adding the form-of-F to it.[63] When Socrates says such things he is not saying that form causes its possessor to admit of being thought in a certain way, but rather that form causes its possessor to *be* a certain way (or, perhaps, that possessing the form constitutes its being that way). Socrates is using a metaphysical distinction between a thing and the forms it possesses, and his statements may contain the germ of a theory about what it is for a form to characterize a thing. Moreover, the assumption that it is possible for distinct things to share an identical form is an assumption about reality not about thought. The Socratic View of Concepts uses these metaphysical points to explain a cognitive phenomenon and to provide cognitive norms. Thus, though the View is epistemological, it presupposes a certain amount of metaphysics, as all epistemology must.

However, though the presuppositions of the Socratic View of Concepts are metaphysical in the sense of being (*prima facie* at least) points about reality rather than points about cognition, they are not metaphysical in a more robust sense that would render Socrates a metaphysician. Everyone holds metaphysical and epistemological views, if we construe these terms in the broadest senses possible. Everyone holds views about what things exist and how they're related to one another, and everyone has some views about what we can know and how we can know it. Wholesalers, for example, are happy to talk about the attributes of their merchandise, and they

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[62] The Platonic solution to this puzzle is, of course, already suggested in the *Meno*: the inquirer into F does not "not know at all" what-F-is; he knew what-F-is in a previous life and can draw on partially remembered fragments of this prior knowledge.

[63] *Hippias Major* 687c, cf. *Protagoras* 332a. At *Hippias* 289d Socrates refers to "the fine itself by which everything else is embellished and appears fine when that form is added".

will insist that this merchandise is identical to that found in department stores. They also have views about how one can know whether twenty-dollar bills are genuine or counterfeit. There is a sense in which these views can be described as "metaphysical" and "epistemological", but the wholesalers are not engaged in metaphysics or epistemology.

When Socrates asks his "What is F?" question, he is doing something novel. This is evident in his interlocutors' initial failure to understand him. Socrates' new and philosophical question turns on a new and philosophical premise about cognition, but it does not make any non-standard assumptions about reality.[64] Socrates assumes, where other people had not, that, in order to know anything about, e.g., virtue, one must know about some form that is identical in each virtue. However, in assuming that things possess forms and that they can be identical, he is not assuming anything that wholesalers do not. His uses of εἶδος and ἰδέα are ordinary Greek, not philosophical jargon denoting some special class of existents. (If the translation "form" leads us to think otherwise, then we might be better served by "characteristic".[65]) It is also clear that, when Socrates claims that such things as the "the pious" and "justice" exist, he is not positing the existence of anything controversial; even Protagoras, the archetype of relativism, happily assents to such claims.

Socrates' assumptions about the metaphysics of forms are not distinctive philosophical positions. What is distinctive is the idea that the proper object of a concept is an identical form possessed by the concept's instances. This is an idea about the *cognitive role* played by forms, and Socrates interest in it is driven by a concern about how to inquire and how to assess claims to knowledge. For these reasons, I take Socrates' position to belong to epistemology rather than metaphysics.

1.2.3 Plato's Theory of Forms as a theory of concepts

If Socrates' forms were not special metaphysical posits, Plato's certainly were. The Platonic Forms of the Middle Dialogues are explicitly contrasted with the perceptible objects whose

[64] Allan (1970) finds an "Earlier Theory of Forms" in the *Euthyphro* and other Early Dialogues. Responses to his view can be found in Rist 1975, Vlastos 1991 59, and Dancy 2004 65-68.
[65] I favor "form" because it captures an important continuity with the Middle Dialogues, but I find it quite natural to refer to forms as "characteristics" and have been regularly doing so in my exposition.

existence non-philosophers readily acknowledge. These Forms are ὄντα or οὐσίαι, which are what they are and cannot appear to be otherwise,[66] nor be characterized in any way by their opposites, change into their opposites,[67] or change in any way at all.[68] To each Form, there corresponds a host of perceptible things that are "called after" it.[69] Unlike the Form, these perceptible things are merely "becoming"—"rolling around between pure existence and pure non-existence," without being any more what anyone says they are than they are the opposite of that thing.[70] They constantly change,[71] and have or appear to have contrary qualities.[72] Forms are simple, while perceptible things are complex.[73] Where perceptible things are objects of mere opinion, Forms are intelligible and serve as the objects of knowledge.[74]

The profound differences between Plato's Forms and perceptible things make it unnatural to think of the Forms as elements in the things, so we find talk of forms being in perceptible things replaced by talk of the perceptible things imitating, resembling, or striving to be like Forms.[75] It is this set of differences between Forms and perceptible things, that makes it natural to capitalize the "F" when speaking of Platonic Forms, and it is presumably this set of differences that Aristotle has in mind when he speaks of Plato's "separating" the Forms.

It is clear that Plato recognizes that his Forms are a controversial metaphysical posit because he tells us that most people (the lovers of sights and sounds) do not believe they exist,[76] and because he offers arguments that they do exist.

Though Platonic Forms are existents of a sort that Socrates did not envision, there is an important continuity between Socratic forms and Platonic Forms that makes it sensible to talk of the latter as "separated" versions of the former. Like Socratic forms, Platonic Forms are supposed to be the proper objects of conceptual knowledge—they are supposed to be the F about

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[66] *Phaedo* 74b.
[67] *Phaedo* 102d-103e.
[68] *Symposium* 211b, *Phaedo* 78d.
[69] *Phaedo* 103b, 102b.
[70] *Republic* 497b-d.
[71] *Phaedo* 78d-79a.
[72] *Phaedo* 74b, *Republic* 497b.
[73] *Phaedo* 78c.
[74] *Republic* 479e.
[75] However, the talk of containing the form never disappears entirely, and the language of "participation" seems to be intentionally vague. Evidently, the exact relationship between forms and perceptible things was an issue with which Plato continually struggled. For a useful discussion of the terms used in different dialogues to describe the relationship between forms and particulars, see Ross 1951 227-231.
[76] *Republic* 476a-d.

which we know when we know about F. This function for Forms is apparent in Plato's arguments for them.

Before turning to the arguments in the Middle Dialogues, let's recall briefly Aristotle's account of Plato's development. On this account, Plato's Theory of Forms is the result of an attempt to recast Socratic epistemological commitments in the context of a Heraclitean metaphysics of the perceptible world. The metaphysics renders perceptible things unsuitable to serve as objects of knowledge, so the definitions Socrates was seeing must

> apply not to perceptible things but to other things... Existents of this sort, then, {Plato} called ἰδέαι, and said that perceptible things are apart from these and are called after them, since the things with the same names as the εἴδη are what they are by participation in them. (987b5-11)

The definitions that Socrates sought were accounts of forms that are the proper objects of concepts. Heraclitean perceptible things are unfit to serve as objects of knowledge; therefore, the forms that are, according to Socrates, the proper object of a concept, must be separate from perceptible things. If this is Plato's reason for positing separate Forms, then the Theory of Forms is a theory of concepts. It is an attempt to explain unitary cognition of indefinitely many differing objects—to explain how we can think about, e.g., "men" or "the fine" and have our thoughts apply to the many differing men or fine things.

To see whether Aristotle's account of Plato's reason for positing separate Forms is accurate, we will need to turn to the arguments offered for forms in the Middle Dialogues. Given our purposes in doing this, we can bracket the difficult questions of what precisely Heraclitus thought, what Plato took him to think, and to what degree Plato endorsed it. Plato attributes the doctrine that "All things flow" to Heraclitus,[77] and he is explicit in the *Cratylus* that this doctrine is incompatible with the possibility of knowledge:

> No, nor can {something which is never in the same state} be known by anyone. For at the moment when the would-be knower approaches it, it becomes some other and different thing, so that its quality and state can no longer be known. Surely no kind of knowledge is knowledge about that which is in no state. {...} In fact we cannot even say that there is such a thing as knowledge, if all things are changing and nothing remains fixed. For if knowledge itself does not change and cease to be knowledge, then knowledge would remain, and there would be knowledge; but if the very εἶδος of knowledge changes, at the moment of the change to another εἶδος there would be no knowledge, and if it is always

[77] *Cratylus* 401d, cf. *Theaetetus* 161d.

> changing, there will always be no knowledge. So, on this account, there will be neither anyone to know nor anything to be known. (440a-b)

Plato makes this point in the course of giving an argument that has much in common with the one Aristotle attributes to him. He begins by making Socrates ask Cratylus whether there is "a beautiful itself, and a good itself, and the same for each one of the things that are" (439c). Nothing said earlier in the dialogue indicates that an affirmative answer is supposed to signal an acceptance of any controversial ontological commitment, and Cratylus' ready acceptance of the claim confirms that what is at issue at this point in the dialogue are the familiar forms of the Early Dialogues. Plato goes on to argue that if these forms exist and are objects of knowledge, then they cannot be in a state of flux:

> However, if there is always that which knows and that which is known—if there are such things as the beautiful, the good, and likewise for the other things that are—then it doesn't appear to me that these things can be anything like flowings or motions. (440a-c)

Plato does not argue here that the forms must be apart from the perceptible things, but he does argue that they must be static in order to fully *be* and thus to be known. Therefore, either the perceptible world must not be fully in flux, as Cratylus thinks, or the forms must be outside of the perceptible world.

The *Phaedo*'s recollection argument does require Forms that are radically distinct from perceptible things, and it too begins from epistemological considerations. In essence, the argument is that when we know F, the object of our knowledge is distinct from and superior to each of the many perceptible Fs. The many perceptible Fs are not F in the same way the F itself is—there is some deficiency in their likeness to the F itself, which constitutes a deficiency in their being F that manifests itself in the fact that, unlike the F itself, they sometimes appear to be not-F. This difference between the F itself and the many perceptible Fs is such that our knowledge of the F itself cannot have been gleaned though perception. Yet it is perceptible experience with the many Fs that in some sense causes us to be aware of the F itself. Cases in which experience with one thing occasions awareness of another thing that is somehow like or related to the first are cases of recollection, and they are only possible when the recollecter has prior knowledge the recollected thing. Therefore, we must have knowledge of the F itself prior to the perceptual encounters that occasion its recollection, and since these sorts of encounters begin

at birth,[78] we must have knowledge of the F prior to birth, which means we must exist prior to birth.[79] The forms introduced during the course of this argument are Platonic, separated Forms. These are Forms to which perceptible things cannot live up, and the reason we are given for believing that such Forms exist is that we have a sort of cognition whose object cannot be perceptible things—we have knowledge of an F, which cannot be any perceptible F, because, unlike the many perceptible Fs, this F never appears non-F.

Republic V argues that the distinction between knowledge, opinion, and ignorance requires that each state have a distinct object. Knowledge's object is being and ignorance's non-being, so opinion must have an object that is in between the two. Such an object would be and not be. Since each of the many F's sometimes appears to be non-F, none is any more F than it is non-F. These things are, then, between being and not being—or at least between being F and not being F. They are, therefore, objects of opinion. Objects of knowledge would have to be things that never appeared to be other than as they are—i.e., Forms, which must exist if knowledge does.[80] Similarly, the *Timaeus* (at 51c-e) argues that forms must exist because without them there could be no distinction between νοῦς and true opinion.[81]

Two arguments for Forms can be found in the *Parmenides*. Though it is a late dialogue and is critical of the Theory of Forms, the youthful Socrates of that dialogue is an exponent of the theory expounded in the Middle Dialogues. The first argument is contained in a statement of Parmenides' to which Socrates consents:

> I suppose you think that each form is one on the following ground: whenever you believe that some number of things are large, you believe perhaps, as you look at them all, that there is one same ἰδέα, and from that you conclude that the large is one. (132a)

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[78] Notice the premise here that in perception as such recollection occurs. The idea seems to be that perception presupposes Form-knowledge. Plato is really the author of the Kantian cum Sellarsian argument that perception presupposes concepts, which are used to interpret and structure the received data.

[79] 72e-77b.

[80] 476e-479e. The argument does not make this conclusion explicit. Republic V has another brief argument for forms from opposites (476a). It is the only argument Plato offers for forms that does not follow the pattern I've been discussing.

[81] In allowing that opinion would be possible without the Forms, some of these arguments suggest that it would be possible to have conceptual cognition—thought not *knowledge*—of perceptible things even if were no Forms. However, it is not clear that, apart from the Forms, this sort of opinion is even rationally assessable, and, if it is not, it is not clear that it should count as cognition. In the *Phaedo* and *Phaedrus*, at any rate, it is clear that the Forms underwrite not just the sort knowledge acquired by philosopher but also the less rigorous forms of cognition enjoyed by normal people.

This line of reasoning could be endorsed even by the Socrates of the Early Dialogues who asked Euthyphro whether "everything that is to be impious presents us with one ἰδέα insofar as it impious" (5d). In fact, this text is simply a statement of the Socratic View of Concepts. It begins from the idea that Socrates *believes* many things to be large, and that what he is thinking about when he thinks this is a form common to all the large things. It is clear that Socrates' primary concern here is with finding a basis for his unitary thinking of the large things, because he is willing to entertain the possibility that the form is simply a thought (νόημα) at 132b.

The second argument in the *Parmenides* is also given by Parmenides himself. After criticizing the Theory of Forms, he says:

> On the other hand... if someone, having an eye on all the difficulties we have just brought up and others of the same sort, won't allow that there are εἴδη for things, and won't mark off an εἶδος for each one, he won't have anywhere to turn his thought, since he doesn't allow that for each thing there is one ἰδέα that is always the same. In this way he will destroy the power of dialectic entirely. (135bc)

Here, as in the *Cratylus*, we see the idea that we need non-changing forms to serve as objects of knowledge. Notice that it is *thought* and *dialectic* that would be destroyed if we abandon the hypothesis that the forms exist. It is the possibility of knowledge or thought or reasoning that is in view every time that Plato argues for the existence of forms. The forms are a posit to explain the possibility of a certain sort of cognition. In particular, they are supposed to explain the possibility of the sort of knowledge Socrates sought, conceptual knowledge consisting in definitions and reasoning from them.[82]

Plato's Theory of Forms is a theory of concepts in that it accounts for how we can have unitary thoughts that apply to pluralities of differing things.[83] According to the Theory, the

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[82] The set of epistemic issues on which Plato bases his arguments for the Forms is raised also by the Athenian Stranger at the end of Plato's final work (*Laws* XII 965b-966c), though he expresses some ambivalence about their ontological implications.

[83] It is unclear whether Plato held this theory about all concepts or only about some. At *Republic* 596a he writes: "Shall we proceed as usual and begin by assuming the existence of a single *ousia* or form for every set of things that we call by the same name?" and Aristotle sometimes speaks of Platonists positing Forms for "all the things that are spoken universally" (*Metaphysics* M.4 1078b33). However, Plato's own examples are most often moral and mathematical qualities or else physical or logical contraries such as hot and cold or same and different. In the *Parmenides* (130b-e), Socrates seems to be certain that there are forms for these qualities, uncertain as to whether there are forms for man and horse, and certain that there are not forms for things like mud and hair. But Parmenides, who is the protagonist of this dialogue, suggests that Socrates' reluctance to apply the theory in all cases is a result of his youth, so arguably the *Parmenides* supports the more liberal view. On the other hand, Aristotle sometimes tells us that there are not supposed to be forms for negations (*Metaphysics* M.4 1079a10, *Περὶ ἰδιῶν* 80.16) relatives (83.25), series (*Nicomachean Ethics* I.6 1096a18-20), perishable things (*Metaphysics* M.4 1079a11), and artifacts (*Metaphysics* A.9 991b6-7). There is no need to settle this question for our purposes, and the contradictory evidence

proper object of a concept is a Platonic Form—a unitary thing that exists apart from the perceptible world. Thoughts about this Form apply, though defectively, to a plurality of differing things within the perceptible world, because these things participate in the Form. Only true philosophers have *knowledge* of the forms, but every human being enjoys at least a dim recollection of them. This enables him to "refer" (ἀναφέρω) perceptions of Fs to the form of F and to "comprehend reasoning in accordance with form, proceeding from many perceptions into one, which is gathered by reason" ("συνιέναι κατ' εἶδος λεγόμενον, ἐκ πολλῶν ἰὸν αἰσθήσεων εἰς ἓν λογισμῷ συναιρούμενον") (*Phaedo* 75b-c, *Phaedrus* 249b-c.).

Of course, the Theory of Forms is not simply a theory about cognition. It is also a theory about what is most fully real, and, in the *Phaedo* especially, it forms the core of a theory of causation. (Aristotle certainly was aware of these aspects of the Theory, with which he engaged in the *Metaphysics*' discussions of whether universals are substances and causes.[84]) In addition to its epistemological and metaphysical dimensions, the Theory also has an evident ethical dimension. Given all this, it may be thought that it is misleading to characterize it as a theory of concepts, because, though the Theory does contain a solution to the Problem of Concepts, this solution is not the Theory's sole function or motivation. In describing the Theory as a theory of concepts, I do not mean to claim that it was motivated exclusively by the Problem of Concepts, but I do maintain that its role as a solution to that Problem deserves pride of place because of the dominance of epistemological considerations in nearly all the arguments Plato offers for the Theory. Moreover, I think, though I cannot argue here, that The Problem of Concepts generates or informs most of the other problems that are addressed by the Theory of Forms.

1.2.4 Aristotle on Platonic Forms and the need for universals

As important for my purposes as the actual motivation for the Theory of Forms is what Aristotle took the motivation to be. Aristotle is clear that he thinks Plato posited Forms to render Socrates' definitional project consistent with Heraclitus' metaphysics of the perceptible world, and that the

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may be reason to suppose that Plato himself was undecided. In any event, the Theory of Forms explains the concepts for which there are Forms, and if the dialogues in which the Theory is advocated recognize the possibility of other concepts, they offer no account of them.

[84] *Metaphysics* Z.8, 13, Λ.3.

purpose of Socrates project was to find starting-points for deduction. And, like the arguments for forms in Plato's dialogues, the arguments recounted in Aristotle's *Περὶ ἰδιῶν* depart from premises about conceptual cognition. Aristotle's Plato, then, certainly wrestled with the Problem of Concepts.

Aristotle's wrestled with the problem himself in the *Περὶ ἰδιῶν*, which was devoted entirely to evaluting the Theory of Forms. There he argues that some of the arguments offered for Forms do establish something, namely that there are "common things". In other, and presumably more mature works, he devotes considerable attention to such "common things", referring to them as universals (τὰ καθόλου)—i.e. as things that are "by their nature predicated of many".[85]

"Καθόλου", which is presumably an Aristotelian coinage, is a contraction from the phrase "κατὰ ὁλου" ("as a whole").[86] This phrase, in turn, occurs only once prior to Aristotle, in the *Meno*:

> But come on and try to fulfill your promise to me by stating about virtue as a whole what it is (κατὰ ὅλου εἰπὼν ἀρετῆς πέρι ὅτι ἐστίν)[87], and stop making many from one, as jokers say when someone breaks something—rather, leaving it whole and sound, state what virtue is. (77a5-9)[88]

The *Meno* is an especially significant dialogue, because it contains Plato's most explicit discussion of Socrates' commitments concerning definitions and begins to raise puzzles concerning them and to introduce elements of his own distinctive metaphysics and epistemology. It is, therefore, a natural place for Aristotle to reach back to when looking for a term to denote just what the Socratic commitments to definition and deduction require.

The centrality of universals to ἐπιστήμη is a recurrent theme in the *Posterior Analytics*. See especially I.31 where Aristotle argues that universals are needed to reveal causes, which (as

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[85] *De Interpretatione* 17a39-b2, cf. *Metaphysics* Z.13 1038b11f.

[86] At any rate, the term is first used by Aristotle, and coining terms by nominalizing phrases is part of his *modus operandi*.

[87] For the phrase "ἀρετῆς πέρι ὅτι", cf. 72a, where it occurs in Meno's initial promise.

[88] In *Republic* V, we find an occurrence of "κατὰ ὅλον":

I seem to be a ridiculous and obscure teacher; so just as unable speakers do, I will try to reveal what I intend to you not κατὰ ὅλον but rather by taking up some part.

The meaning seems to be slightly different. The genitive in κατὰ ὅλου is presumably the same genitive one finds with verbs of predication—it is the case for that *against* which one makes an allegation, whereas in the *Republic* passage it is more natural to translate the κατὰ + accusative with some formula like "according to". (Also worth looking at in connection with the etymology of καθόλου is *Prior Analytics* 43a39, where Aristotle speaks of what's required to establish something "κατά τινος ὅλου".)

of I.2) are required for ἐπιστήμη, and I.24 where he argues that one must demonstrate a conclusion at the most universal level possible.[89] Universals are equally prevalent in the *Metaphysics*. Of the fourteen ἀπορίαι (on Ross' count) raised in *Metaphysics* B, four (the seventh, eighth, ninth, and twelfth)[90] involve worries that knowledge requires a universal object. The following three passages will serve as examples:

> Connected with this is a puzzle most difficult and most necessary to study, to which our discussion now turns. If nothing exists besides the particulars, and particulars are infinite, how is it possible to get knowledge of things that are infinite? For all things that we come to know we come to know insofar as they have some unity and identity, and insofar as some attribute belongs to them universally. But if this is necessary, and there must be something apart from the individuals, it will be necessary that the kinds exist apart from the individuals... (999a24-30, cf. K 1060a3-7)

> If principles... are not universal, but are such as individuals, they will not be knowable; for knowledge of anything is universal. (1003a12-15)

> If we know each thing by its definition and the kinds are the principles of definition, the kinds must also be the principles of definable things. (998b4-5)

In subsequent chapters, we will have occasion to discuss Aristotle's view of universality in some depth, for now it is sufficient to note its connection to the Problem of Concepts and the Socratic matrix from which it springs. To be a universal is to be predicable of many—to be the sort of thing the definition of which Socrates sought; and Aristotle regards universals as crucial because of the role they play in knowledge. It is due to epistemological considerations that there is pressure to posit forms or something like them, and Aristotle is happy to "say goodbye to the forms" when he thinks he can explain universal predication and deduction without them (e.g., in *Posterior Analytics* I.22 83a33-5). In Chapter 2, I will argue that what Aristotle says goodbye to is not only Plato's separated forms but also the (less metaphysically committed) Socratic View of Concepts—the thesis that a concept requires a proper object which does not differ from instance

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[89] The connection here to the *Meno* is striking. The definitions that Socrates complains "break" virtue into many things are credited by Meno to the sophist Gorgias and consist in attempts to offer sets of less universal definitions in place of a single definition of virtue. In particular Meno tries to define the virtues separately and to give separate definitions for the virtue of a man, and of a woman, and so on for different sorts of people. Socrates is seeking the definition of virtue to serve as a middle term in a deduction concerning whether virtue is teachable. Were he to accept Meno's definition sets he would end up with several parallel deductions, which is just the sort of thing Aristotle is arguing against in *Posterior Analytics* I.24. In I.2 he refers to a cognitive state that results from this sort of reasoning as mere "sophistic" or "incidental" ἐπιστήμη (71b10).

[90] Ross 1924a 235-250.

to instance. In Chapters 3 and 4, I will argue that Aristotle held that universality has a basis in reality but essentially involves the mind. To set the stage for all of this it will be helpful to put antiquity to one side and return to my general characterization of the Problem of Concepts and its philosophical and historical significance.

1.3 THE PROBLEM OF CONCEPTS AS THE PROBLEM OF UNIVERSALS

The Problem of Concepts is that of explaining what a concept is—of how we can think unitarily about an existential plurality. Earlier, I suggested that this is the fundamental issue at stake in set of philosophical controversies usually referred to as the Problem of Universals. My task in this section is to support and develop this claim and to develop some implications of it.

One often finds the Problem of Universals posed in terms of "concepts" or some roughly equivalent term (e.g., "notions", "ideas", etc.). For example, in his 1909 *Catholic Encyclopedia* article on "Nominalism, Realism and Conceptualism," DeWulf writes:

> The problem of universals is the problem of the correspondence of our intellectual concepts to things existing outside our intellect. Whereas external objects are determinate, individual, formally exclusive of all multiplicity, our concepts or mental representations offer us the realities independent of all particular determination; they are abstract and universal. The question, therefore, is to discover to what extent the concepts of the mind correspond to the things they represent; how the flower we conceive represents the flower existing in nature; in a word, whether our ideas are faithful and have an objective reality.[91]

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[91] Cf. DeWulf 1909b 150:

> The problem of the Universal is none other than that of the *truth* or *objective* reality, of our intellectual knowledge. While the data of our sense-perceptions are manifold and individual, the object of our intellectual representations is abstract, universal and independent of all individuating conditions or determinations. The question is, whether such intellectual conceptions are faithful; whether they correspond adequately with the external objects which give rise to them in our minds; whether, therefore, they teach us anything about what exists outside our minds.

(See also Mercier 1906 328 ff.) Neo-Scholastic logic and epistemology texts typically introduce the problem in the same way. Coffey, in his 1938 *The Science of Logic*, puts the problem as follows:

> What *are* those objects or entities which we apprehend as universal, common, communicable in our universal ideas, and what relation have they to the things revealed to us through our senses? (9)

Similarly, consider how the problem is introduced and motivated by Aaron in *The Theory of Universals*:

> The problem of universals, rightly posed, is still fundamental and urgent; for to understand universals is to begin to understand thinking.
>
> It is from this angle that I approach the theory of universals, regarding it as a necessary part of the theory of thinking. What we call conceptual thinking involves the use of general words and no explanation of the successful use of the general word is possible without facing and solving the problem of universals. (1952 vii)

Russell, in *Problems of Philosophy*, introduces the Problem of Universals by reconstructing "more or less" how it arose for Plato:

> Let us consider, say, such a notion as *justice*. If we ask ourselves to consider what justice is, it is natural to proceed by considering this, that, and the other just act with a view to discovering what they have in common. They must all, in some sense, partake of a common nature, which will be found in nothing else. This common nature, in virtue of which they are all just, will be justice itself, the pure essence the admixture of which with the facts of ordinary life produces the multiplicity of just acts. Similarly with any other word which may be applicable to common facts, such as "whiteness" for example. The word will be applicable to a number of particular things because they all participate in a common nature or essence[92]

Notice that his point of departure is notions and words. Consider also A.D Woozley's entry on Universals in *The Encyclopedia of Philosophy*. After a brief discussion of the term's etymology, it begins:

> That in some sense or other there are universals, and that in some sense or other they are abstract objects—that is, objects of thought rather than of sense perception—no philosopher would wish to dispute; the difficulties begin when we try to be more precise.[93]

Joseph, in his 1916 An Introduction to Logic, introduces concepts as objects of thought which are "universal" and identifies them with the "characters" of things, before dealing with the question of whether these universal characters are real or merely in the mind. Commenting on the nature of the problem he writes:

> We find in reflecting on our thoughts about things, that we do think them to be things of a kind, instances of the same. That is why the present discussion is logical; though it is one of those logical problems that concerns the being of things. (27, see 22-28)

[92] Russell 1997 91-2.
[93] Woozely 1967 194.

Lowe's entry on "universals" in *The Oxford Companion to Philosophy*'s begins by telling us that universals are "the supposed referents of general terms".[94] In *Think*, Blackburn introduces the "ancient topic... of universals" as follows:

> To understand things and describe them requires using concepts that are rule-governed in the minimal way just described {viz. by principles that "separate correct application of a term from incorrect application"}. But what is the 'reality' behind these rules?[95]

The Problem of Universals, as formulated by all these authors, is a problem about concepts. It is either the Problem of Concepts itself, or else a department of that problem. As common as this way of construing the Problem of Universals is, it is rarely developed consistently. In particular, it has implications for how we should understand and classify "theories of universals" that are not often appreciated. I will develop this point in §1.3.3-5. First, it will be necessary to discuss an alternative way in which the Problem of Universals is sometimes construed.

1.3.1 Competing construals of the Problem of Universals

The Problem of Universals is often introduced as a problem about whether or in what sense properties exist,[96] or about how to account for such facts as that "there is such a thing as recurrence in nature",[97] that "sometimes some things have something in common",[98] or that "two different things... can be of the same type".[99] These ways of presenting the problem are the same in that they all point to numerous things that are supposed to be somehow the same and then ask for an explanation of this sameness. For example, we might note that there are many red things: fire engines, roses, catsup, the window frames at Falling Water, etc., and ask: "What is it for all these *different* things to be the *same* color?" or "for this *one* color to 'repeat itself' in these many different things?"

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[94] Lowe 1995 887.
[95] Blackburn 1999 266.
[96] e.g, Blackburn 1994 387.
[97] e.g., Landsman 1971 3-4.
[98] Goldstein 1983, cf. Quine 1953 9-10, Legg 2001.
[99] Armstrong 1989 2, cf. 1978 11.

In fact each of the red items I mentioned differs in color from the others. The window frames at Falling Water, for example, are Cherokee red, while fire engines are fire-engine red, etc. So people who ask how it is that these things are all red might be asking what it is for Cherokee red and fire-engine red to both be red. To ask this question one must already presuppose that the two different colors both *are* red. To presuppose this is simply to *regard* both colors as red, even while recognizing the difference between them. Thus, the question being asked is: What are we doing in regarding the two colors this way, and what basis do we have for doing it? But this question is simply the Problem of Concepts, so we do not have here a distinct philosophical issue.

Though the red things I mentioned are all different colors—different shades of red—there are (or at least may be) multiple things that are precisely the same color. For example, the window frames at Falling Water and the tile bearing Frank Lloyd Wright's signature at Kentuk Knob are both Cherokee red, and (let us suppose) Cherokee red is an entirely determinate color that does not come in differing shades. I have no objection to taking such things as Cherokee red as a limiting case of universals, or to saying that there is a concept "Cherokee red". However, I do not think that there is any genuine philosophical problem posed by the sort of sameness exhibited by two Cherokee red items. I don't think that qualitative identity (complete or partial) requires or admits of explanation.[100]

Philosophers puzzled by qualitative identity ask, for example, whether Cherokee red is many different identical existents or numerically one existent (a "universal") which is somehow simultaneously present in different places.[101] But once one is thinking of the color of a given body, rather than of the body itself, I see no sense to questions about numerical identity or diversity or about location. Qualities *qua* qualities don't have any such attributes; when one abstracts away from entities to speak of existents in other categories, one has abstracted away from the conditions under which concepts of numerical identity and diversity apply.[102]

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[100] The term "qualitative identity" is not ideal because it applies not only to qualities but to quantities and relations, and perhaps to other sorts of existents as well.

[101] See Aaron (1952 231-234) for an example of treating identical shades of colors as "repeatables" and examples of *universalia in rebus*. Blanshard (1964 392ff) accepts the existence of "specific universals"—"qualit{ies} or character{s} that {are} incapable of sub-division into kinds," such as the shade of red that might be shared by two postage stamps from the same roll—while denying the existences of "generic universals" (e.g. man, horse) and "qualitative universals" (e.g. color, sound, and presumably red).

[102] For a defense of this position in the context of an interpretation of *Categories* 2, see Jones 1972 and 1975.

Whether one finds anything of philosophical significance in what we might call "The Puzzle of Qualitative Identity" will depend in part on the position one takes on a range of metaphysical issues that are beyond the scope of this discussion. It is not my purpose here to discredit the Puzzle, but to distinguish it from the Problem of Concepts. Once we do so, I think it is clear that the latter problem has the better claim to be the traditional Problem of Universals. We've already seen it in Plato's dialogues. The Medieval debate over universals, sparked by Porphyry's *Isagoge*, was conducted (initially at least) in terms of the genera and species that we predicate of individual entities. Since the members of a genus (e.g. bird) are obviously not qualitatively identical to one another, it cannot be the Puzzle of Qualitative Identity that was at issue for Porphyry and his readers.[103]

However, when the Problem of Universals is raised in terms of "sameness of properties" or "sameness of type" or "repeatables", often both the Problem of Concepts and the Puzzle of Qualitative Identity are at issue, without being distinguished from one another. One can argue about the degree to which this is the case in various periods, but plausibly the Puzzle did play some role in both the Ancient and the Medieval debates (particularly later in the Medieval period), so the Puzzle has some claim to be a (lesser) component of the traditional Problem of Universals. (If, as I think, the Puzzle is a pseudo-problem that gains currency only through the failure to distinguish it clearly from the Problem of Concepts, then it makes more sense to

[103] Similarly, as Sellars (1961b §26) points out, for the British Empiricists, the problem of general ideas was the problem of how to form ideas like "red" whose instances differ from one another, not the problem of how to form ideas of absolutely determinate shades. Sellars' sees this as a problem in their thought; he thinks that thought of determinate repeatables is just as problematic as thought of determinable repeatables, and that the Empiricists only failed to recognize this because they believed that we acquire ideas of determinate repeatables automatically in perception. This belief is a symptom of the Empiricists' subscription to what Sellars derisively calls "the Myth of the Given"—the doctrine that there are certain foundational items of knowledge, which do not owe their status as knowledge to any other items of knowledge. Earlier §1.1.1, I defined a concept as a unitary awareness of a multiplicity of *differing* objects. In doing this, am I siding with the Empiricists over Sellars and falling prey to the Myth? I find Sellars' arguments against the Myth unconvincing and I do believe in a perceptual given on which conceptual knowledge is based, but this is not my reason for defining "concept" as I do. Most of our concepts are not absolutely determinate, as "Cherokee Red" (*ex hypothesi*) is. Concepts *can* subsume differing instances, and most (if not all) of them do. If we have any concepts that are absolutely determinate, they are comparatively sophisticated. In the case of colors, they are concepts possessed by painters, for example, but not by normal people, and certainly not by everyone who has concepts like "red" and "green". These absolutely determinate concepts are learned late in an individual's life and are only useful in a context of a system of concepts which includes more general concepts. Thus absolutely determinate concepts constitute a special or limiting case of concepts. Moreover, many of the reasons why we need a theory of concepts do not apply, or do not apply as strongly, in these cases. It is hard to imagine what guidance a theory of concepts might offer someone who is engaged in an argument about whether one thing is exactly the same shade of red as another. Finally, on at least one very popular view of the role of perception in knowledge (the view Sellars calls a "myth"), the explanation for ideas of absolutely determinate attributes is fundamentally different from the explanation for concepts.

identify the Problem of Universals with the Problem of Concepts and to think of the Puzzle of Qualitative Identity as a sort of confusion that occasionally develops due to vague formulations of the Problem.)

1.3.2 Why speak of the Problem of Concepts rather than a Problem of Universals?

Though I think that The Problem of Concepts and the Problem of Universals are one and the same, much is gained by thinking of it as a problem about concepts. The term "universal" is ambiguous. In one sense, as we will see, it denotes a sort of object posited by a theory of a certain sort in order to serve as the proper object of a concept. It would be parochial to define and name the Problem in terms of this one answer to it. In doing so we would obscure the purpose of the posit and, therefore, the work that must be done by a theorist who denies it.

"Universal" also has the more generic sense, used, e.g., by Woozley when he says that everyone agrees that "in some sense or other" there are universals. I think it is this sense that Aristotle intended in coining the term "καθόλου". There was already a perfectly satisfactory term for posits of the relevant sort; this is what Aristotle (and other academics) meant by "ἰδέαι". In *Metaphysics* A.9 and M, at least, Aristotle does not limit that term to separated Platonic Forms, but lets it range widely enough to cover all the things believed in by the people who now call themselves realists about universals.[104]

Using the generic (Aristotelian) sense of "universal", one can speak of the Problem of Universals and ask about the nature and location of universals: are they in things? prior to things? in the mind? in the voice? etc. (This is what Porphyry did, though instead of "universal" he used the narrower terms "genus" and "species".) However (at least in English), this way of posing the problem tends to stifle the imagination by encouraging one to think of each "universal" as an item to be pigeonholed within one's ontology. What is to prevent a concept from resting on a complex relationship between, say, its instances, the mind, and linguistic practices? On such a view, where would we say that "the universal" was? I don't think that, in Aristotle's own context, "καθόλου" would have had this stifling tendency. For him and his immediate audience, the term would likely have retained the feel of a prepositional phrase, and

[104] See, for example, 991a8-19.

this may have encouraged more complex and creative answers to the question of "what is the 'as a whole' thing"—answers of the sort that I will argue Aristotle offered.

1.3.3 Realism as a theory of concepts

For now, however, let's put aside the generic sense of "universal". This leaves us with a range of "brand name" senses on which universals are types of existents posited by some theory (or school of theories). This is the way in which both Russell and Armstrong use the term. Russell tells us that he means by "universal" what Plato meant by "εἶδος" and "ἰδέα"—something which is "opposed to the particular things that are given in sensation," which "not being particular cannot exist in the world of sense," and which "is not fleeting or changeable", but is "eternally itself, immutable, and indestructible".[105] Armstrong says that people who hold that the tokens of a type "have something strictly identical" are "called Realists and are said to believe in the reality of universals".[106] Presumably, then, the strictly identical thing is the universal in whose reality the realists believe.

Since "universal", in the non-generic sense is a theoretical term for a sort of posited entity, how it is to be defined differs somewhat from theory to theory. This may be evident from the excerpts from Russell and Armstrong above, and is more evident if one considers, for example, the literature on whether Platonic forms are universals or particulars.[107] In the generic sense, Platonic Forms are clearly supposed to be universals: they are supposed to be the subjects and predicates of such thoughts as "Bees like honey" or "The pious is just," which thoughts are supposed to apply (though perhaps defectively) to myriad perceptible particulars. The questions with which the literature on this topic is concerned are really questions about whether Plato posits the same sorts of existents as certain other philosophers or about where Platonic Forms should be classified within some favored ontological scheme. This approach is parochial. It would be better to look at the various existents posited by different theories to explain concepts and then to define "universal" by generalizing over these posits.

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[105] Russell 1991 92.
[106] Armstrong 1991 3.
[107] For discussion of differing conceptions of "universal" and related terms as they relate to determining whether Platonic Forms are universals see Fine 1993 21-25.

We have already looked at two such theories in §2's discussion of Plato's Theory of Forms and the Socratic View of Concepts. Plato's Theory is, of course, the paradigm case of so-called "Extreme Realism".[108] It holds that the proper objects of concepts are unitary Forms that exist independently of, and in some sense prior to, the instances of the concepts, which instances stand in some ontological dependence relation to the Forms. Socrates' position has significant structural similarities to Plato's in that it too explains the unitary nature of a concept on the basis of a unitary and self-identical proper object. On both views, a concept refers to a plurality of differing instances in virtue of some relationship between these instances and the concept's proper object. In general, the theories called "realist" conform to this model. "Realism" is an apt name for this sort of theory because it explains a concept's unitary nature by positing a *real* (i.e. mind-independent) unitary object. If we are going to use "universal" in its non-generic sense as a noun, we should use it for these proper objects.

A universal, then, is a *one over many* (as its etymology suggests), it is a unitary and self-identical thing that can serve as the proper object of a concept because it is related to a plurality of things in some way such that thoughts about it apply to all of the others. Different varieties of realism differ about the sort of unity possessed by the universal and the sort of relation in which the universal stands to the particular instances of the concept whose proper object it is.

The two historically prominent varieties of realism are Extreme Realism and Moderate Realism.[109] Extreme Realism holds that the universal is a numerically singular object that somehow exists independently of the particulars, which somehow "imitate" or "participate" in it. The position that has most often been advocated under the name "Moderate Realism" is simply the position that I earlier called "The Socratic View of Forms". On it, universals are not *numerically* singular and they do not exist apart from particulars. Rather, each of the instances of a concept has a component or characteristic which is qualitatively identical to some component or characteristic in each of the other instances. By virtue of this qualitative identity, the

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[108] This view is also called "exaggerated", "transcendent", "complete", or "Platonic" realism. See, e.g., DeWulf 1909a, Armstrong 1978a 140, Grote 1872 252, and Marenbon 1998 13, respectively.

[109] Moderate and Extreme Realism do not exhaust the domain of possible realist theories. One can conceive of as many varieties of realism as one can of relationships in which universals might stand to instances. Indeed Realisms that do not qualify as either "Moderate" or "Extreme", are prominent in contemporary discussions of concepts. Milliken, for example, holds that the objects of substance concepts, e.g. "milk", "mouse", and "table", have the same sort of unity that individual entities do; both sorts of objects are four-dimensional space-time wholes. This view qualifies as realist. On it, the proper object of a concept is the whole of which its instances are spatiotemporal parts (see Millikan 1999). Similar views have been advocated by philosophers of biology (e.g, Hull 1978 and Ghieselin 1997) who describe species as "individuals".

component or characteristic is said to be one and is thought to serve as the proper object of the concept. If this view is only implicit in the Early Dialogues, it has since been advocated explicitly by the Scholastics and their descendents. (Aristotle is, of course, often taken to be the fountainhead of Moderate Realism, and I will consider the merits of attributing this position to him in Chapter 2.)

Notice that "universal", as I have defined it does not denote a *type* of existent. Rather the term denotes any existent insofar as it plays (or is suited to play) a certain role in cognition. If, for example, there are paradigms of created things existing in God's mind or in a non-spatiotemporal heaven, these will qualify as universals only if they explain and justify concepts by serving as their proper objects. Likewise, uncontroversial items like the color of a certain Cherokee red object will be universals (in reality or on some theory) only if they make concepts possible by serving as their proper objects. This point must be stressed. Universal and particular are not ontological *taxa*; much less do they comprise a mutually exclusive and jointly exhaustive taxonomy of existents. On Extreme Realism (and perhaps on some other varieties or Realism as well), the distinction between universal and particular may map on to a distinction between types of existents, but is not the case for Realism as such.

It is worth pausing to make a related point concerning the relation of universals, (as I use the term) to the "universals" believed in by the "realist" about the Puzzle of Qualitative Identity. These latter "universals" are supposed to be existents of a special type, each of which is a numerically singular thing that underwrites qualitative identity by being "repeatable" or capable of existing or being instanced in many places at once. A "particular", in the sense of the term corresponding to this sense of "universal" can only be in one place at once, and the opposition between such "particulars" and "universals" is supposed to constitute a taxonomy of beings.

One can affirm or deny the existence of universals in my sense, whatever one's position on "universals" in this other sense, and *vice versa*. Moderate Realists claim that there are always qualitative identities between the instances of concepts. They are not thereby committed to any position at all on the Puzzle of Qualitative Identity, though the reasons that lead them to embrace Moderate rather than Extreme Realism will usually lead them to reject "universals" in the Qualitative-Identity Theorist's sense (and likely, they will regard his problem as a pseudo-problem). By the same token, if one is already committed to Extreme Realism and is therefore in the business of positing numerically singular existents of a controversial sort in order to explain

the relationship between the instances of concepts, then it is natural to construe the relationship between qualitatively identical things in terms of these existents.

Since my overarching topic is Aristotle's position on the Problem of Concepts, and Aristotle is so often taken to be a Moderate Realist, Moderate Realism deserves special attention. I discuss it in greater depth in the next section. Before doing so, however, it is worth making a few connected points about Realism in general, which derive from the nature of the Problem of Concepts.

The formation and use of concepts is partially under our control and the Problem of Concepts is as much a problem about how we *should* form and use them as it is a problem about how we *do* form and use them. Because of this, we should take any theory of concepts as, in the first instance, a theory about proper or legitimate or healthy concepts. A theory can allow for the possibility of pseudo-concepts, which are not concepts at all and of defective concepts of various sorts. Therefore, when the Realist claims that each concept has as its proper object some self-identical, unitary thing that stands in a certain relationship to all of the concept's instances, he need not be committed to positing the existence of some such proper object for every *putative* concept. He is free in the case of any given putative concept to deny that there is a proper object and thus to deny that the concept is genuine, or he can be agnostic as to whether a given putative concept has a proper object and is genuine.

There is nothing to prevent a Realist from denying that most of our putative concepts are genuine concepts and holding that most thought is some sort of confusion—perhaps a confusion that somehow approximates to proper thought. Arguably, this is Plato's position, and variants of it are not uncommon. Armstrong for example is a moderate realist who holds that the only concepts with proper objects are those used in the formulation of scientific laws.[110] Of course, if one holds this sort of position one will still need to give some account of the concepts (or pseudo-concepts) that people use in ordinary thought.[111] He might classify them as defective concepts, or he might think of them as concepts of a completely different sort, to be explained (and judged) by some theory other than Realism. Thus, it is possible to be a Realist about some

[110] Armstrong 1978b.

[111] Or at least one will need to do this if one is to have a complete theory of concepts. A theorist may be interested only in explaining and developing norms for some subset of concepts.

concepts while accepting some other theory (or even having no theory at all) about other concepts.

1.3.4 Moderate Realism as a theory of concepts

The most explicit recent proponents of Moderate Realism are the Neo-Scholastics of the Louvain school, and I will take them as my paradigm Moderate Realists.[112] It will be instructive to consider their own statements of their position. I quote at some length to give the flavor of their view:

> The universal is not a thing in itself; it is immanent in individuals and is multiplied in all the representatives of a class. As for the form of universality of our concepts... it is just a product of our subjective consideration. (DeWulf 1909a)
>
> Why are manifold individuals classified under a common or universal concept? ...because they are *similar*.... {S}imilarity is a partial *conceptual* or *logical* identity: each individual of the manifold is so constituted that some factor of each, isolated by the abstractive power of the intellect from the other factors, appears to intellect as one definite self-identical object, and is apprehended as universal or as "common to all". (Coffey 1958 277-8)
>
> {T}he real objective foundation for the universal concept {lies} in the perfectly similar natures of the members of the same class. (Maher 1900 249)
>
> John is a *man*, so is James also a *man*: *man* can be attributed to both and to an indefinite multitude. And it can be attributed to them truly, for each assertion means only that object of my universal idea—*human nature*—is really in each and every one of the individuals, though not in the same way as it is conceived by my mind. (Coffey 1938 7-8)
>
> When the mind apprehends the essence of a thing... the external object is perceived without the particular notes which attach to it in nature... and it is not yet marked with the attribute of generality which reflection will bestow on it... The abstract reality is apprehended with perfect indifference as regards both the individual state without and the universal state within... Now what is thus

[112] I leave aside the question of how closely these thinkers' ideas correspond to those of Aquinas and the original scholastics, of whose teachings they take themselves to be faithful followers. The distance between us and the medieval texts makes them less accessible than the writings of the neo-Scholastics and so less serviceable as a paradigm. Also, the term "Moderate Realist," does not date back to the Medieval period, and it is applied to Aquinas et al. insofar as they are understood a certain way by modern scholars. It should, then, make sense to ask whether Aquinas (or Duns Scotus, etc.) *really was* a moderate realist—i.e. whether he held what his neo-Scholastic, Moderate Realist followers take him to have held.

> conceived in the absolute state... is nothing else than the reality incarnate in any given individual: in truth, the reality, represented by my concept of man, is in Socrates or in Plato. There is nothing in the abstract concept that is not applicable to every individual; if the abstract concept is inadequate because it does not contain the singular notes of each being, it is none the less faithful, or at least its abstract character does not prevent it from corresponding faithfully to the objects existing in nature. As to the universal form of the concept, a moment's consideration shows that it is subsequent to the abstraction and is the fruit of reflection... Whence it follows that the universality of the concept as such is the work purely of the intellect. (DeWulf 1909a)

> And when {Scholastics} say that "universals" are "fundamentally" in things or reality... they mean that it is this abstract thought-object which, as to its content, is *real* or *in things independently of our thought*. {…} And when scholastics say that "universals" are "formally" in the mind... they mean that the object of thought or conception considered *as a universal*,—*i.e.* as something common or communicable to, and realizable in, and predicable of, many things,—is only in the mind, and is, as such, not independent of thought. In other words, it is *because* the object is a *thought*-object... *that it is a universal*. As it really exists in any individual *datum* of sense... it is individualized, singular, incommunicable; only as it is apprehended in the abstract by intellect... is it "common to many things" or "formally universal". (Coffey 1958 270-271)[113]

In each quote, we see what I earlier called the Socratic View of Concepts. Over and over we see the idea that each of the instances of a concept contains something that is identical or "perfectly similar," to something in each of the other instances, such that, when one thinks of this identical thing in abstraction from any instance's other characteristics (its "singular notes"), one's thought applies equally to each of the other instances. The basis of the concept is the identical characteristic or element, and this is what I have called the "proper object" of the concept.

According to Moderate Realism, one forms the concept by considering an instance and performing a certain "screening operation" of "context-omission": one focuses on the proper object to the exclusion of the instance's other attributes.[114] Kant articulates the essence of this view of concepts in his lectures on logic, when he says that a concept is "a partial representation,

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[113] See also Joseph 1916 31-2, 70-71, Veatch 1952 105-115, and Parker and Veatch 1959 52-4.

[114] I borrow the phrases "screening operation" and "context omission" from Reese (1960) and Linnell (1956) respectively. Both authors were writing about Locke, to whom I will turn shortly. For an illuminating discussion and critique of this theory of concept formation see Geach 1971 11-38. Geach uses the term "abstraction" for what I'm calling "context-omission" and uses the term "abstractionism" for the theory that concepts are formed or acquired in this way. I use "abstraction" more widely for any process by which concepts are formed on the basis of perceptual data. On this view context-omission is a (putative) type of abstraction. (Cf. Binswanger 1967 and 1989.)

which can be common to several" objects and that a thinker "consider{s} this partial representation as a ground of cognition, insofar as {he} ignore{s} all other partial representations".[115] The same idea can be found in Locke who holds that "*general natures* or *notions* are... abstract and partial ideas of more complex ones, taken at first from particular existences" (*Essay* III.3.9). Indeed Locke's account of abstraction is strikingly similar to the neo-Scholastics:

> {T}he mind makes the particular ideas received from particular objects to become general; which is done by considering them as they are in the mind such appearances,—separate from all other existences, and the circumstances of real existence, as time, place, or any other concomitant ideas. This is called Abstraction, whereby ideas taken from particular beings become general representatives of all of the same kind; and their names general names, applicable to whatever exists conformable to such abstract ideas. Such precise, naked appearances in the mind, without considering how, whence, or with what others they came there, the understanding lays up (with names commonly annexed to them) as the standards to rank real existences into sorts, as they agree with these patterns, and to denominate them accordingly. Thus the same colour being observed to-day in chalk or snow, which the mind yesterday received from milk, it considers that appearance alone, makes it a representative of all of that kind; and having given it the name *whiteness*, it by that sound signifies the same quality wheresoever to be imagined or met with; and thus universals, whether ideas or terms, are made.[116]

It is worth noticing, that neither Locke, nor any of our neo-Scholastics (in the passages quoted at least) is in the least bit concerned with the "Puzzle of Qualitative Identity". Their statements presuppose that things can have identical characteristics and assume no more than this. Their Realism consists in the claim that concepts are the result of regarding such characteristics in a certain way. The universals in which the neo-Scholastics believe are not, *in themselves*, universals at all. Thus the neo-Scholastics sometimes speak of their universals as being particular in the particular instances or as being neither universal nor particular in the "absolute state". The relevant existents are universals just insofar they are capable of being regarded in a certain way and so provide a basis for unitary thought of indefinitely many objects.

Any characteristic shared by all the instances of a concept that serves as the basis and proper object of the concept is an immanent universal (or *universalis in re*), and any one who

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[115] The *Dohna-Wundlacken Logic* 753 (as translated by Young 1992 486-7), cf. *Vienna Logic* 904-5 (Young 348-9). The relation of the views Kant expresses in the various lectures on logic to the views expressed in the *Critique of Pure Reason* is a matter of some difficulty, with which we needn't concern ourselves here.

[116] *Essay Concerning Human Understanding* II.11.9.

holds that concepts have such universals as their proper objects is a Moderate Realist. (Remember, though, that a thinker can be a Moderate Realist about a sub-set of concepts while denying that other concepts have imminent universals as their proper objects.) I add "basis" to "proper object" in the above statement to indicate that the identical characteristic must exist mind-independently and be part of what makes the concept possible. This rules out views on which the partial identity of the objects would derive from (or be coeval with) our conceptualization of them. Such a view would be too different from that of the neo-Scholastics to fall under the same heading.

It is essential to Moderate Realism that the proper object of a concept is *real*—i.e., is in no way constituted by the mind—and *really exists in the instances*. What the mind contributes is only a way of focusing on the proper object and regarding it in such a way that thoughts of it apply to many distinct things. Any theory on which the mind does more than omit context will not be Moderate Realist. Thus, for example, Locke departs from Moderate Realism in the case of "complex ideas", which he thinks the mind creates by *conjoining* simple ideas and compounding them into a unit through the introduction of a word.[117] In doing this, the mind partially creates, rather than discovers, the concept's proper object **(**though it does so from discovered material).[118]

For the Moderate Realists, the proper object needs to exist prior to and independent of the conceptualization, because it is only by becoming acquainted with this object in perception that we are able to omit its context and form a universal concept. Notice that Coffey, in the last quoted passage above, equates the way in which the universal characteristic "really exists" with how it exists "in any individual *datum* of sense". He stresses that "the content of our universal concepts is really in the data of sense" and says that this accounts for concepts' "real objective validity" (290). Similarly, Mercier claims that

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[117] See *Essay Concerning Human Understanding* III.5.10.

[118] On the whole, Locke's position is best classified as a sort of conceptualism rather than as a sort of realism. The concepts about which he's a moderate realist are only those of simple ideas, which he thinks are formed automatically and automatically satisfy the norms of realness and adequacy. Since these are a small subset of concepts and are the ones about which we're the least in need of epistemic guidance, his treatment of them is of less significance for classifying his theory than his treatment of other ideas.

> The intellect finds in the data of sense experience its proper object, viz. the essences of things; it reads or deciphers in the core of the sense fact 'that which the thing is'...[119]

We can, then, flesh out moderate realism by adding that the identical element which is to be screened out to form the concept must somehow be available in the sense-perception of each of the instances—at least for concepts whose instances are perceptible.

This completes my account of the Moderate Realist theory of concepts. I will consider whether Aristotle held it in the next chapter. If, as I will argue, he did not hold it, we will be faced with the task of identifying and classifying his view. To this end, I will conclude this chapter with some comments on the general topic of classifying theories of concepts.

1.3.5 Classifying theories of concepts

Discussions of the "Problem of Universals" often suppose that any theory is either realist or "nominalist" (i.e., anti-realist), as though this division stood at the basis of a taxonomy of theories.[120] But, if a universal is simply a certain sort of existent posited to explain concepts, then there is no *prima facie* reason why the central issue in classifying theories should be whether they make this particular posit. Consider a parallel: Some accounts of the ultimate nature of reality posit a single omnipotent, omniscient, and omni-benevolent God who created the universe, while other accounts do not. Nevertheless, someone who classifies all accounts of the ultimate nature of reality as either monotheistic or heathen is as misguided as he is parochial. Hindus do not posit such a God, conventional Greek religion did not, Aristotle did not, and neither do atheists. These various "heathens" are just as different from one another as they are from the monotheists. In the same way, two theories of concepts that do not posit universals may nonetheless be as different from one another as either is from a theory that does make the posit. Therefore, the fact that some theories of concepts posit universals and others do not is not a sufficient basis for grouping all the non-realist theories together under some common heading,

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[119] Mercier 1906 380 (quoted in translation in Coffey 1958 290). Mercier is not using "proper object" in my technical sense, rather he's using it to mean, the object proper to intellect as opposed to the object proper to sense, but these two senses come to the same thing.

[120] For example, Armstrong (1989 6) treats "nominalist" and "anti-realist" as synonyms. See also Loux 1998. Philosophy texts books often define nominalism simply as the view that only particulars exist. See for example Earl 1992 95.

much less for treating the distinction between these two putative camps as the fundamental issue in the debate.

To get a sense of what the sorts of similarities and differences there can be between theories of concepts, let's compare briefly the four traditionally recognized "Theories of Universals". They are Moderate and Extreme Realism, Conceptualism, and Nominalism. I have already discussed the two forms of Realism and will treat them as a unit. Since none of my substantive theses will depend on how "Conceptualism" and "Nominalism" are to be defined (or even on whether they are valid categories), I will just sketch brief accounts of archetypal versions of the theories, cast in the vocabulary of concepts that I have been using.

Conceptualism is the doctrine that the proper object of a concept is a mental construct, which is distinct from any of the concept's instances and from anything that could exist in the world of perceptible objects. A paradigm case of this view would be Locke's view of concepts like "triangle".[121] We have, he famously thought, a "general idea" of triangle that, unlike any particular triangle, is "neither isosceles, nor equilateral, not scalene".[122] Nominalism is the doctrine that, when we use a concept, we are always thinking of some particular, perceptible (or imaginable) object—typically either an instance of the concept or a word. The concept is an ability to utilize a cognition of a single particular object in a manner that renders thoughts of it applicable to a plurality of objects. Thus, on one common version of the view, when a man thinks about "triangles" he may be thinking about a given triangle which he has drawn or imagined, but he thinks about it in such a way that the conclusion he reaches about can be transferred to other triangles as well.[123] On another version of the view, when a man thinks about triangles, he is engaged in a series of machinations involving the word "triangle", which word he has learned to use in such a manner that he will be able to apply the outcome of these machinations to many different triangles.

Conceptualism and Nominalism, contra Realism, agree in not positing universals. Realism and Conceptualism, contra Nominalism, agree that concepts involve a type of mental content that could not occur in perception. Conceptualism, contra Realism and Nominalism, holds that a concept involves some sort of fiction in that it represents a sort of object that (at least

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[121] Locke's thought on concepts is complex and he does not treat all types of concepts in the same way.
[122] *Essay Concerning Human Understanding* IV.7.9.
[123] See Berkeley, *Principles of Human Knowledge*, Introduction, §16.

as far as the subject knows) does not exist outside the mind. We have, then, some basis for grouping any pair of the theories together as opposed to the third. And we have seen no reason to think that these three theories exhaust the possible theories of concepts.

Developing a taxonomy of theories of concepts, then, is no mean feat. To do it, we would need to survey a range of different theories and determine the comparative significance of the various issues on which the theories differ. I will not embark on this project here. My aim is merely to warn against assuming a taxonomy without an adequate basis. I stress this point because the next chapter will be devoted to the question of whether Aristotle is a Realist, and it must be kept in mind what turns on this issue and what does not. If Aristotle is not a realist, then he need not thereby be in the same camp as Ockham, Hobbes, Locke, Berkeley, Hume, Wittgenstein, or anyone else. If we determine that Aristotle is not a Realist, we will still have the considerable task of determining what he does hold about concepts, and how his views, whatever they may be, relate to a host of more familiar positions.

This said, I do think there is a similarity between Conceptualism and Nominalism (at least as these views have typically been held) which is significant enough to justify grouping them together as opposed to Realism. Both views treat concepts as arbitrary or conventional, either denying that concepts are answerable to any standards, or else setting standards for them solely in terms of social custom or pragmatic utility, which depend as much on the subjects' interests as on facts about the objects. Therefore, on both views, but not on Realism, concepts have a subjective character. Given the epistemological context in which the Problem of Concepts arises, I think this difference is quiet significant. However, developing it is not central to my project so I will not pursue it here. I mention it only to further clarify what it would and would not mean for Aristotle not to be a Realist. It may be that the dominant non-realist theories of concepts in the history of philosophy all render concepts subjective, but it does not follow from this that all non-realist theories must. There is room for theories that hold that concepts have an objective basis, without having universals as their proper objects. I will argue that Aristotle's held such a view.

Whatever non-realist, objectivist elements may be present in Aristotle's thought, his discussion of Plato's realism does suggest that Aristotle is sympathetic to the moderate realism implicit in the Socratic dialogues. Aristotle's focuses on how Heracliteanism drove Plato to "separate" his forms. The implication is that if we reject Heracliteanism, as Aristotle does, we

can retreat to the moderate realist view of "imminent forms". This is, of course, the position on the problem with which Aristotle is usually associated, and the constant use he makes of the Platonic concept "εἶδος", including in the context of discussions of the universality of knowledge (e.g., *De Anima* III) offers some support for it. Let us, then, turn our attention to the merits of this traditional interpretation.

2.0 WAS ARISTOTLE A MODERATE REALIST?

> Aristotle... formulated the main doctrines of Moderate Realism... The universal is not a thing in itself; it is immanent in individuals and is multiplied in all the representatives of a class. As to the form of universality of our concepts (man, just), it is a product of our subjective consideration... It was through this wise doctrine that the Stagyrite exercised his ascendancy over all later thought. (DeWulf 1909a)

In this passage, we find what might be called the "standard" or "conventional" interpretation of Aristotle's position on the Problem of Universals: Aristotle authored a Moderate Realism according to which universals are immanent in perceptible particulars and isolated in thought. They are fully real in the sense of existing independently of the mind, but are not self-subsistent objects—not οὐσίαι—, but are dependent features or elements of particulars. This interpretation is so entrenched that "Aristotelian Realism" is at least as common as "Moderate Realism" as a name for the thesis it ascribes to Aristotle.[1]

The form Aristotle's Moderate Realism is supposed to take is captured in the textbook slogan that "Aristotle brought Platonic forms down to earth":

> Aristotle was a realist about universals; in addition to individuals there exist forms. But universals do not transcend individuals. Unlike Platonic forms, Aristotle's forms exist in individuals, and good observation, which includes the use of reason, can discern the forms that exist in individuals. For Aristotle, forms are *immanent* in individuals, and thus Aristotle elevated nature and human affairs by bringing Plato's forms down to earth. (Geirsson and Losonsky 1998 18, cf. Roochnik 2004 161, Pojman 1997 246, and Clay 2000 215.)

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[1] DeWulf (1909b 151) speaks of "Moderate or Aristotelian Realism". The *Blackwell Dictionary of Western Philosophy* (Bennin and Yu 591) reports that: "Aristotelian realism argues that a universal has no separate existence of its own but is a structure embedded in things (a *universal in re*)". See also the *Oxford Dictionary of Philosophy* (Blackburn 1994 287), which tells of "the Aristotelian belief that universals exist in things (*in re*) but not independently of them". Similar accounts can be found in Aaron (1952 23), Woozley (1967) and Geirsson and Losonsky (1998 18). Moderate realism is also sometimes referred to as "Thomistic realism," "Scholastic realism," or "immanent realism" (which last Armstrong [1978a 36] treats as synonymous with "Aristotelian Realism").

If taken in its most straightforward sense, the claim that Aristotle thought that Platonic Forms exist in individuals cannot be true. In *Metaphysics* A.9 (991a12-19) he attributes this position to "Eudoxus and others" (adding that it was anticipated by Anaxagoras), and says that it is "very easily upset; for it is not difficult to collect many insuperable objections to such a view".[2] Though something called "εἴδη" figure prominently in Aristotle's ontology and serve some similar functions to those played by Plato's Forms in his ontology, Aristotle introduces and motivates his conception of form independently of Plato, and on several occasions he tells us flatly that the Forms posited by Plato do not exist.[3]

Aristotle didn't see himself as accepting a moderated version of Plato's Theory. But he may not have been correct in this assessment. Whether he was depends in part on what Aristotle held and in part on what we should understand as essential to Plato's Theory, considered as a theory of concepts. In my last chapter I argued that Plato's solution of the Problem of Concepts is the positing of ontological universals to serve as the proper objects for concepts. In the Middle Dialogues at least Plato characterizes these universals as transcendent and characterizes a concept's instances as related to the corresponding universal by a relationship of imitation or participation. Following the tradition, we called this theory "Extreme Realism" and saw it as a version of Realism, which holds that a concept is a cognition of some unitary mind-independent "universal" object, and that it applies to its instances derivatively because of some relation in which they stand to the universal. "Moderate Realism" identifies the relation between the instances and the universal as some sort of containment. In this chapter I take up the issue of whether Aristotle held this view. I argue that he did not, and I sketch the sort of ontological basis that he does think that concepts do require.

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[2] The same point is made in M.5 (1079b15-23). One can get a sense of what objections Aristotle has in mind by considering B.2 (998a7-19) and M.2 (1076a38-b11) where Aristotle discusses the similar idea that mathematical objects exist in perceptible things. For useful discussion of the A.9 passage see Dancy (1991, 23-8) and Ross (1924a 198). Both scholars are concerned to show how the position Aristotle ascribes to Eudoxus is different from (what they take to be) Aristotle's view of immanent forms. Ross takes Eudoxus' position to be that forms are immanent "substances in the fullest sense" and Aristotle's position to be that universals are "not substances in the proper sense of the word". Since Platonic forms are supposed to be οὐσίαι—indeed the only true οὐσίαι—this reading makes Eudoxian forms re-located Platonic forms in a way that Aristotelian forms are not. Dancy's thinks that the relationship between the three thinkers is more complex, but he agrees with Ross that Aristotelian forms and Eudoxian forms are imminant universals and that Eudoxus' view is closer than Aristotle's to Plato's "High Theory of Forms".

[3] See especially *Metaphysics* Λ.5 1071a17-29 and *Posterior Analytics* I.11 and 22.

This chapter can be seen as offering a down payment on a refutation of the Moderate Realist interpretation. A complete case would require considering a number of texts that seem to support the interpretation but which I will postpone until Chapters 3 and 4, where I discuss the psychological and epistemological dimensions of Aristotle's thought on concepts. In the present chapter I limit my attention to the ontological basis of concepts, and especially whether an immanent universal is a necessary condition for a concept.

The first step in answering this question is reformulating it in terms that bring us closer to his texts. This will be the task of §2.1, where we will see how the answer to our question turns primarily on whether Aristotle conceives of kinds (or genera, "γένη") and forms (or species, "εἴδη") as immanent universals. It should be no surprise that our question comes to this; we have already met with the idea that Aristotelian forms are universals, and the Medieval debate over universals was sparked by Porphyry's mention of an ἀπορία concerning the ontological status of forms and kinds.[4] I focus on the case of kinds in §2.2 and §2.3, arguing first against the Moderate Realist interpretation, and then bringing out some of the metaphysical and psychological implications and presuppositions of Aristotle's position. In §2.4, I turn to the case of forms, before concluding, in §2.5 with a brief general discussion of the ontology of Aristotelian universality.

2.1 REFORMULATING OUR QUESTION IN ARISTOTELIAN TERMS

2.1.1 Concepts as simple thoughts of non-numerical unities

In *De Interpretatione* 1, Aristotle speaks of affections of the soul that are likenesses of objects, and he distinguishes these affections from both the objects themselves and from words. Words symbolize the affections in the way that written words symbolize spoken ones. It is only through symbolizing these affections that words manage to signify objects.[5] Aristotle refers to the relevant affections of the soul as thoughts (νοήματα), and in particular as thoughts "without

[4] *Isogage* 1 10-13.
[5] *De Interpretatione* 1, cf. *De Anima* III.6.

combination or division" (16a14), such as the thought of a man or of running, as opposed to the thought that a man runs. This latter thought involves the combination of the thoughts of man and running and is expressed linguistically by a sentence (λόγος) formed by combining the words, "man" and "runs", which symbolize those uncombined thoughts.[6]

In the *Organon*, Aristotle deals only with declaratory (ἀποφαντικός) sentences, which, as opposed to (e.g.) prayers, are true or false. Each declaratory sentence is either a proposition (πρότασις) or else made up of propositions joined by connectives.[7] A proposition is "a sentence affirming (καταφατικὸς) or denying (ἀποφατικὸς) something of something",[8] and each proposition can be broken down into two terms (ὁροί), "that which is predicated and that of which it is predicated"—i.e. the predicate and the subject.[9]

We are told repeatedly in the *De Interpretatione* that a proposition asserts or denies "one thing of one thing".[10] A sentence might fail to do this, even if it has the same grammatical form as another sentence that does express a proposition. For example:

> If a single name is given to two things, out of which there is not one thing, then there is not a single affirmation. E.g., if someone were to posit the name "cloak" for horse and man, {and say}: The {statement} "A cloak is white". This is not a single affirmation nor a single denial; for this is no different from saying, "A horse and man is white, but this is no different from saying "A horse is white" and "A man is white".[11] So if these signify multiple things (πολλά) and are multiple {affirmations}, surely it is clear that the initial {statement} signifies either multiple things or nothing (for no man is a horse). (8 18a18-25)

> Affirming or denying one thing of multiple things or multiple things of one, unless some one thing is composed (συγκείμενον) from the multiple things, is not a single affirmation or denial. I do not call it one if one name is posed (κείμενον)

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[6] Though Aristotle does not say so here, it is negative thoughts or sentences that are formed by division. For example, "The man is not white" divides man from white. This is the view taken in *Metaphysics* E.4 and Θ.10. By contrast, *De Anima* III.6 (430b1ff), treats such thoughts as combinations including "not white" as one of the terms to be combined, but it allows that these cases (or perhaps that all complex thoughts) can also be treated as divisions. On this issue, see below §3.1.1.

[7] *De Interpretatione* 5 17a8. Aristotle speaks here of κατάφασεις and ἀποφάσεις, rather than of προτάσεις, which is the generic term embracing the two.

[8] *Prior Analytics* I.1 24a16.

[9] *Prior Analytics* I.1 24b16-18.

[10] See *De Interpretatione* 8 18a12, *Prior Analytics* I.23 40b35, *Posterior Analytics* I.2 72a9, I.22 83b17-31, and *Sophistical Refutations* 6 and 30; cf. *Metaphysics* Γ.7 1011b24.

[11] Aristotle's Greek, of course, lacks quotation marks. In English, where we do have them, it is ungrammatical to omit them, so I've supplied them. Occasionally deciding where to place them requires an interpretation, with which someone might take issue. For example, perhaps the "and" belongs in the quotation marks, yielding the long sentence "A horse is white and a man is white". My punctuation brings out the plurality of the affirmation, but I don't think much turns on this.

> but there isn't any one thing from them. E.g., man is, perhaps, animal and biped and tame, and yet some one thing comes from these; but there is not one thing from white and man and walking. So, if {someone} affirmed some one thing of these, there would not be a single affirmation (rather, while the vocalization (φωνή) would be single, the affirmations would be multiple), and likewise, if {someone affirmed} these multiple things of one thing. (11 20b12-22)[12]

If either term in a sentence signifies a multiplicity of things, Aristotle treats the sentence as expressing multiple propositions, unless the multiple things somehow constitute a unity.

The two passages quoted above concern different sorts of multiplicities. In 11, the two multiplicities considered are "animal, biped, and tame" and "white, man, walking". In both cases, we have sets of terms that could apply to a single thing, but only in the first case does the set compose a new term because it is (*ex hypothesi*) the definition of man.[13] The *De*

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[12] See also *Posterior Analytics* II.10 93b36 and *Sophistical Refutations* 6 169a6ff, 17 179a39ff, and 30. The issue of what constitutes "one proposition" is of special significance to Aristotle, especially in the *Sophistical Refutations* because of the common sophistic tactic of "making two questions into one" by asking a question with an equivocal term and taking the answer to apply to both of the term's senses.

[13] Ackrill (1963 145) regards Aristotle's position on this issue as "clearly unsatisfactory" because:

> He fails to recognize that a statement which contains a name (or verb) which does not stand for a genuine unity may nevertheless be itself a unitary statement, incapable of decomposition into simpler statements. 'Some men are musical cobblers' and 'no musical cobblers are wise' cannot be construed as conjunctions of simpler statements containing no such compound terms as 'musical cobblers.'

It is unlikely that Aristotle would have been moved by this criticism. He is concerned less with providing an analysis of every possible sentence than with providing an understanding of terms and propositions that can explain their function in argument and ultimately in knowledge. Consider how one would argue to or from Ackrill's statements about musical cobblers. To prove that some men are musical cobblers one would first have to argue that some men are musical and then give a separate argument that some of these men are cobblers. There are no unitary propositions that would count as evidence that someone is or is not a musical cobbler. Similarly, if propositions about musical cobblers are used as premises in an argument, they will not be used as propositions about musical cobblers. For example, consider a putative demonstration of the (imagined) fact that no musical cobblers are wise: Musical cobblers are manual laborers, but no manual laborers are wise, therefore no musical cobblers are wise. Here the musicality of the cobblers would be wholly irrelevant; for it is simply *qua* cobbler that a musical cobbler is a manual laborer. Could there be a demonstration that employed both the musicality and the cobblerhood? Perhaps: Musical cobblers are busy, busy people cannot acquire wisdom. But here again it is not *qua* musical cobblers specifically that the musical cobblers are busy, but *qua* people engaged in sets of disparate activities. There's something defective about statements about musical cobblers with respect to their ability to function in our cognitive economy. It is worth observing how Aristotle himself proceeds when he needs to record facts that might be expressed with sentences like "No musical cobblers are wise". This situation often arises in the *History of Animals* where he makes observations about what features are and are not found together. Typically instead of writing something to the effect that "no musical cobblers are wise" he will write something like "Of men, whichever (ὅσα) are cobblers are not wise". The *Organon* does not offer any analysis of this form of speech, which preserves a unitary term as the subject and introduces two distinct unitary predicates, and must be understood as a sort of compound or conditional. Aristotle thinks that conditionals do not function as premises in arguments, but play some other role, and are not present in wholly mature bodies of knowledge.

Interpretatione puts off the question of how this composition works.[14] It is taken up in the *Posterior Analytics* and *Metaphysics*, and we will have occasion to discuss it in §2.2.2.

More relevant for our immediate purpose is the sort of multiplicity Aristotle has in mind in 8 and how these multiplicities can constitute unities. Here the multiplicity in question is "horse and man". Here the two terms cannot apply to the same subject (at least not at the same time and in the same respect), so the contrast case in which the multiplicity constitutes a unity, cannot be "biped animal". Rather, as the context of the passage makes clear, the contrast is cases in which a single term is applied non-homonymously to a range of mutually exclusive objects—for example, "animal". Whereas animal applies to men and horses and birds and fish etc., there is no term that applies in this way to all and only horses and men.[15]

Thus we can think of a concept as a cognition of a multiplicity of things that constitutes a non-numerical unity.[16] Thus we can reformulate the question of this chapter as follows:

> Does Aristotle think that a set of things must share an identical element or characteristic in order to constitute a non-numerical unity of the sort that can serve as a term in a proposition?[17]

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[14] "Stating why 'bipedal, footed animal' is one thing rather than many (for it certainly won't be one by being spoken together) is for another work" (5 17a13-15).

[15] See the texts cited in n. 10, above.

[16] We need to add "non-numerical" before "unity" to exclude, e.g., an individual shoe. If we defined a concept as merely as a thought of a multiplicity that constitutes a unity, then the thought of the shoe would qualify as a concept, because the shoe is one thing made up of many parts. But the thought of the shoe is unlike a concept, because what one thinks about the shoe doesn't apply to its components individually. For example, the proposition that the shoe is comfortable or expensive does not imply that the laces are comfortable or that the sole is expensive.

[17] One might wonder whether the term is (a) the unity comprising the multiplicity, (b) the thought of this unity, or (c) the word denoting it; and in most contexts Aristotle does not take care to distinguish between these three, likely because he assumes an isomorphism between objects, thoughts, and words that makes the ambiguity benign in most contexts. If one wishes to force a choice between the three, one can find some support in the text for each, but no answer can be strictly correct to the exclusion of the others. First consider the possibility that ὅροι are linguistic. This follows from Aristotle's definitions of προτάσις, λόγος, and ὅρος; for a ὅρος it is a component of a προτάσις (*Prior Analytics* I.1 24a16), a προτάσις is a type of λόγος (24a16) and a λόγος is a type of φωνὴ (*De Interpratione* 4 16b26). However, it is clear that λόγος is not normally limited to linguistic items, and in both parts of the *Analytics*, Aristotle most often treats terms as objects rather than as words. Even here, one might be able to understand "term" linguistically, if one took predication to be a linguistic relation, but even if so, terms could not be words *simpliciter*, but words insofar as they signify unitary objects; for we've seen that Aristotle recognizes the possibility of a word which fails to do this. Since words only signify objects by symbolizing thoughts, a word can only qualify as a term *qua* symbol of a thought, and the logic of his position in several key passages (e.g. *Metaphysics* Θ.10 1051b22-a4 and *De Anima* III.6, 8) suggests that the terms are the thought primarily and words only by extension. There are passages in which Aristotle treats objects as terms, but one cannot construe all his talk of terms this way, and it is doubtful that a term is ever an object *simpliciter.* The problem here is clearest in the case of mathematicals, which Aristotle regards not as objects in their own right, but as attributes of οὐσίαι *regarded as though they were independent οὐσίαι*. On this view, the terms of mathematical propositions are not objects *qua* thought about in a certain way. Below (in §2.3.3, §2.4, §3.3) I argue that Aristotle understands universality to be in part a matter of how we (need to) understand and express beings, rather than a fact about those beings themselves. If it is correct,

Given that the vocabulary of "concepts" and "instances" can be translated into Aristotelian idiom in this manner, we can use this vocabulary where it aids economy. Thus we can say that Aristotle holds that a concept is based on the unity comprised by its instances, and we can ask whether this unity consists in the sharing by the instances of a universal. Clearly the answer to this question will depend on Aristotle's conception of the ways in which a multiplicity of things can constitute a non-numerical unity.

2.1.2 Five varieties of non-numerical unity recognized by Aristotle

Aristotle's corpus contains several discussions of unity—most notably, *Metaphysics* Δ.6 and I. Since sameness is said in as many ways as unity (Δ.9 1018a4), we can add several discussions of sameness to our list. These include *Topics* I.7, *Metaphysics* Δ.9, and I.3, *Parts of Animals* I.4 (with parts of 5) and *History of Animals* I.1 (486a15-487a1). I will freely alternate between discussing unity and sameness, on the premise that multiple things constitute a unity (i.e., are one) in any respect in which they are the same and are the same in any respect in which they constitute a unity.

Most of the discussions listed above treat numerical unity, and some treat accidental unity. Neither of these types of unity is relevant to our present question. Numerical unity's irrelevance is obvious; accidental unity is irrelevant because Aristotle does not think that accidental unities like "white man" can serve as subjects or predicates for unitary affirmations or denials. Putting these varieties of unity aside, we have three recurrent varieties of unity and

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then, any universal term cannot be an object *simpliciter* but only insofar as it is thought or expressed in a certain manner.

sameness which might be taken as possible bases for concepts: unity in form (εἴδει), unity in kind (γένει), and unity by analogy.[18]

Topics I.7, which recognizes only sameness in number, in form, and in kind, distinguishes these three varieties of sameness as follows:

> First of all, one must distinguish in how many ways same is said. One may think of the same as divided, in outline, into three parts. For we are accustomed to calling {things} the same either in number or in form or in kind: {we call things the same} in number which are many by name but are one object (πρᾶγμα)—e.g., cloak and coat. {We call the same} in form whatever is many beings undifferentiated with respect to form (ὅσα πλείω ὄντα ἀδιάφορα κατὰ τὸ εἶδος), as a man is to a man and a horse to a horse; for such things are said to be the same in form—whatever falls under the same form (ὅσα ὑπὸ ταὐτὸ ἐστιν). Similarly too, {we call} the same in kind whatever falls under the same kind—e.g., horse {comes under the same kind} as man. (103a6-14)[19]

As Aristotle's example indicates, each kind subsumes several different forms. It is clear from the *Topics* and other works that "kind" and "form" do not designate fixed levels in a taxonomy. Rather, a given kind may be a form relative to some higher kind, and a given form may be a kind relative to some narrower form.[20] Thus walking is a form of the kind locomotion, which, in turn, is a form of the kind motion (*Topics* IV.2 122a18-30). Similarly, justice is a form of the kind virtue (*Topics* IV.6 127b18-25), while virtue and its contrary, vice, are members of the kind state-of-character (*Nicomachean Ethics* II.5 1106a12-14).

However, not every form can be subdivided into further forms: there are "uncuttable forms" (ἄτομα εἴδη, traditionally "*infimae species*"), which cannot be further divided. Man is often given as an example of such a form, but it is not entirely clear which (other) forms Aristotle regards as uncuttable and why he thinks that they cannot be divided.[21] For now it is sufficient to note that, uncuttable forms must have some type or degree of unity, which is lacked by their superordinate kinds. This is presumably why Aristotle distinguishes between sameness

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[18] A possibly distinct variety, mentioned in Δ.6 (1016a17-23), is sameness in form of matter, but this seems to be a derivative case based on sameness in form, and Aristotle doesn't often discuss it, so I won't treat it separately. It is sometimes maintained that this sort of unity is identical with unity in kind.

[19] Aristotle seems to regard this list as exhaustive; indeed he argues (103a15-23) that a putative fourth variety of sameness is in fact an example of sameness in form. (On this argument see §2.3.1.) The contradiction between this passage and Aristotle's recognition of other forms of sameness in other works can be explained by (and, therefore, supports) the widely held hypothesis that the *Topics* is an early work.

[20] For the case that "γένος" and "εἶδος" do not denote fixed taxonomic levels in Aristotle's zoological writings see Balme 1962, and Pelligran 1986 and 1987.

[21] I discuss one explanation for the uncuttability of forms below in §2.4.2, and defend it in that and the following sections.

in form and in kind; so, as a working hypothesis, we can suppose that sameness in form is exhibited only by the uncuttable forms.

Classes of things which are not the same in form, may yet constitute a kind, but not every group of things constitutes a kind. For example, Aristotle insists that there is no kind subsuming, οὐσία, quality, quantity, etc. as forms, and he denies that there is a kind subsuming all and only those animals that either fly or swim.[22] The members of a kind, then, qualify as members by exhibiting a type of unity, lacked by other classes of things.

It is clear that Aristotle thinks forms and kinds can serve as the subjects and predicates of propositions, and therefore there is no doubt that thoughts of them are concepts; for these sorts of unities constitute the terms of the demonstrations that constitute an Aristotelian science. There are three other sorts of unity recognized by Aristotle that seem also to be able to underwrite concepts.

The first of these, which I'll call "focal unity", forms the basis for the concept "being". There is no kind subsuming οὐσία, quality, quantity, etc., but the concept, "being" subsumes these as instances. There must be such a concept because being can be the subject of thoughts; indeed *Metaphysics* Γ.2 argues that being *qua* being is the subject of an entire science. This science is possible, Aristotle tells us, because all the things that are called "beings" are so called *relative to one thing* (πρὸς ἕν). In particular, all beings stand in some relation or other to ὀυσία, which is a kind, and, because of this relation, they all qualify as beings and as objects of a single science.[23]

I've already mentioned that Aristotle considered analogy a type of unity. He says that two things are one by analogy when they are "related as are two further things" (*Metaphysics* Δ.6 1016b35). A common example from the zoological works is feathers and scales, which are to one another as bird is to fish.[24] Usually a group of analogs will not share a common name, and,

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[22] *Parts of Animals* I.4 644a12-16. Presumably this is a reference to the kind "swimmers" which appears in a division in *Sophist* 220b.

[23] I derive the name "focal unity" from Owen's (1979) phrase "focal meaning", which was meant to describe the type of meaning enjoyed by words like "being" or "health". I know of no place where Aristotle clearly says that the many beings or healthy things constitute some sort of unity, though it is natural to suppose that he would think this. In *Metaphysics* Δ.6 1016b6-8, he does list "relative to something that is one" (πρὸς τι εἶναι ἕν) as one of several ways in which something is called a unity, but the context does not make it clear whether he has this sort of case in mind.

[24] *Parts of Animals* I.4 644a20-21. It may be more natural to think of the analogy as holding that feather is to bird as scale is to fish, but since proportions alternate, the ways of formulating the relationship are equivalent, and in some

in the case of animal classification at least, Aristotle thinks this is for the best.[25] This might lead us to suppose that analogy cannot provide a basis for concepts, and that, when one affirms something about, e.g., blood and its analogue in bloodless animals, one is making two affirmations rather than one. However, there seem to be cases of concepts based on analogies, for in *Metaphysics* Λ.3, Aristotle says that the respective instances of "actuality" and "potentiality" are one by analogy (1071a5, 33).[26]

A final variety of Aristotelian unity is that exhibited by a succession (ἐφεξῆς), such as the number sequence or the figures (triangle, quadrangle, pentagon, etc.). Platonists seem to have held that members of successions cannot be united by sharing in a single form, and Aristotle exploits this concession in several of his general arguments against the Theory of Forms (or applications of it).[27] His interest in the distinctive character of successions is not merely polemical. On at least three occasions, he tells us that some subject requires special treatment because it is a succession.[28] Several terms that figure prominently in Aristotle's thinking denote

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circumstances the (arguably) less natural formulation is preferable because it brings the relation between the analogues (bird and fish or feather and scale) to the foreground.

[25] *Parts of Animals* I.4 644a12-23.

[26] One might have expected metaphysical concepts like "actuality" to be based on focal unity, as "being" is. This raises questions about the relation between focal and analogical unity. Perhaps focal and analogical unity are the same, perhaps one is a variety of the other, or perhaps analogical unity is only a sufficient basis for a concept in certain contexts in which focal unity is operative. Henn (1999 186) treats the two varieties of unity as identical; Wilson (2000) sees them as distinct but related.

[27] *Metaphysics* B.3 999a6-13, *Nicomachean Ethics* I.6 1096a17-23, cf. *Eudemian Ethics* I.8 1218a1-15.

[28] Consider the following two passages:

> Such, roughly, is the definition that most fits all those called citizens, but we must not forget that in cases (πραγμάτων) in which the subjects differ in form, and in which there is a primary and a secondary and so on, either nothing at all or hardly anything is common to them as such. But we see that constitutions differ in form from one another and that some are posterior and others prior… So too [we see that] the citizen is necessarily different according to each constitution. That's why, while the {citizen} we described is most of all the citizen in a democracy, in the others {the definition} may indeed apply, but is surely not necessary. (*Politics* III.1 1275a33-b5)

> So it is clear that an account of soul can be single in the same way that [an account] of figure too will be. For, in the latter case, there is nothing besides the triangle and its successors; neither, in the present case, is there a soul besides those mentioned [viz., the nutritive, the perceptive, the desiderative, the locomotive, and the rational]. There could be a common account of figures also, which would fit all but be peculiar to no one of the figures. Likewise with the aforementioned souls. That's why, in these cases and others, it's ridiculous to seek a common account, which will neither be peculiar to any of the beings, nor in accordance with the proper and uncuttable form, {while} passing up such {an account—i.e., one that is peculiar to a being and in accordance with a proper and uncuttable form}. The things in accordance with soul are similar to those concerning the figures; for in the case both of figures and of ensouled things, the prior always is present in potentiality in its successors—e.g., a triangle in a quadrilateral, and the nutritive in the perceptive. Therefore, one must investigate, in accordance with each (καθ ἕκαστον), what the soul of each is—e.g., what a plant's [soul] is, and what a man's is, and a beast's… So indeed it is clear that that

(or were thought by Aristotle to denote) successions. The most notable is "soul", but in some contexts he also treats "good" and "friend" and "citizen" as successions.[29] Since Aristotle endorses what seem to be unitary affirmations about each of these subjects, it is likely that he regarded what we might call "successive unity" as a possible basis for a concept.

We have, then, five varieties of non-numerical unity, which Aristotle seems to regard as distinct from one another,[30] and there is some reason to think that he acknowledges concepts grounded on each. Whether he is a Moderate Realist about the concepts based on each of these varieties of unity is a matter of whether he thinks that the unity consists in or amounts to the sharing of an immanent universal.

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the account concerning each of these is also the most proper account concerning soul. (*De Anima* II.3 414b20-33, a12-13)

Unlike the members of a kind, the items in a succession only admit of a common account in a defective manner. Either the account is vague and uninformative (like *De Anima* II.1-2's "most common account" of soul as "the first actuality of a natural body with organs" [412b4ff]), or else it does not quite fit all of the items (like *Politics* III.1's definition of citizen as a someone with a share in rule [1275a18-32]). Thus a succession seems to constitute a unity in a different way, and perhaps to a lesser degree, than a kind.

[29] Good is treated as a succession in *Nicomachean Ethics* I.6 at 1096a17-23; friend is treated as a succession in *Eudemian Ethics* VII.2, see especially 1236a15-30 and 1236b21-26.

[30] There is some question as to how focal, analogical, and successive unity relate to one another and to unity in form and in kind, so it might be doubted that the five are distinct. Aristotle sometimes treats as members of a kind things that he elsewhere treats as items in a succession (see Metaphysics Δ.5 1024a36ff, Topics IV.3 123b11 and possibly Metaphysics B.3 999a10), and he says things that may imply that the items in a succession must be in the same kind (compare *Politics* III.1 1275a33-b5 with the idea from *Metaphysics* I.3 and 8 [discussed in §2.2.1.2 below] that things that differ in form must be in the same kind). A succession might, then, be thought of either as a special sort of kind or as a sort of subgroup of kind-members that does not constitute a form. (This is the view taken by A. C. Lloyd [1962 76] and Wilson [2000].) However, Aristotle sometimes speaks of the categories as forming a succession (*Nicomachean Ethics* I.6 1096a22, *Metaphysics* Λ.1 1069a20ff), and, since the categories are not members of a single kind, he cannot have consistently held that the items in a succession must be members of a single kind. The idea that the categories form a succession suggests a close connection between successive, focal, and analogical unity. (This suggestion might take some support from *Eudemian Ethics* VII.2, which uses terms and premises usually associated with succession to argue that there is a focal unity amongst forms of friendship. This may tempt us to simply identify focal and successive unity.) But the identification of the two sorts of unity leads to some problematic consequences. Since an item in a succession contains in potentiality its predecessors, quality and quantity would need to contain οὐσία in potentiality, and it is not clear whether any sense can be made of this notion. The connections between these sorts of unity is, then, complicated and worthy of study. Wilson 2000 is the only book-length study of this issue of which I am aware. He maintains that focal, analogical, and successive unity are themselves united by successive unity, but little argument is offered for this integrative thesis and less for the idea that Aristotle regarded the types of unity in this way.

2.1.3 Moderate Realism and the five varieties

It is forms that people most often have in mind when they speak of Aristotle's belief in immanent universals; and, of the five varieties of unity and sameness, there is the most reason to think that sameness in form consists in the sharing of immanent universals. A central doctrine in Aristotle's physical works and in the *Metaphysics* is that each perceptible οὐσία—each, man, horse, plant, etc.—is a composite of matter (which is potentially the οὐσία) and form (which causes the composite to actually be the οὐσία it is). It is no coincidence that the same word, "εἶδος", is used both for that in virtue of which a given οὐσία actually is what it is, and for the species which we would have to name in stating what the οὐσία is. Callias' matter is not, in its own right, either Callias or a member of the species man; in making Callias what he is, his form (εἶδος) makes him a member of the species (εἶδος). It's natural to suppose that the form does this by being an identical characteristic or element in all the members of the species and that the members differ from one another only in their matter. Aristotle appears to commit himself to precisely this in *Metaphysics* Z.8 when he writes of Socrates and Callias that:

> while they are different because of the matter (for it's different), they are the same in form (for the form is uncuttable). (1034a7-8)

Thus the traditional interpretation of Aristotelian forms as immanent universals is quite plausible, even compelling. Nevertheless, there are reasons for doubting it, and a growing number of scholars have come to view forms as particulars rather than universals (though they do not all mean the same thing in doing this). I will defend a version of this view in §2.3.

Kind-concepts predominate our vocabulary and figure prominently in science, so the question of whether Aristotle thinks that these concepts are based on immanent universals is at least as important to the question of whether he is, on the whole, a Moderate Realist as is the corresponding question about form-concepts. If one thinks of forms as universals, then the most obvious way to explain sameness-in-kind is to employ the same technique used in the case of sameness-in-form. Just as perceptible οὐσίαι are analyzed into universal and particular elements, one might analyze a given form into a universal element that it shares with other members of its kind and another element which differentiates it from the other kind-members. Aristotle's endorsement of the method of definition by genus and differentia (i.e., by kind and difference) might be taken to suggest that an Aristotelian kind is some identical element existing in each of

its forms. In §2.2, I argue that Aristotle has a quite different understanding of the relation between a kind and its forms, one that is incompatible with any variety of Realism.

There is less initial plausibility to the idea that analogical, focal, or successive unities consist in the sharing of immanent universals. It would be difficult for Realist interpretations of these types of unity to avoid collapsing the distinction between them and sameness in kind. Moreover, in the cases of focal unity and succession, Aristotle is quite clear that the unified things needn't share any common characteristics.[31] This needn't trouble the standard interpreter much, since Aristotle treats these sorts of unity as unusual and sees them as posing particular philosophical challenges. If the Moderate Realist interpretation fails in just these cases, they may be the exceptions that prove the rule. It is to kinds and forms that we must look to assess the merits of the Moderate Realist interpretation.

2.1.4 Aristotle's generic sense of "universal"

When considering which, if any, of Aristotle's varieties of unity involve the sharing of immanent universals, we are using "universal" in the "brand-name" sense to denote the things Realist theories posit as proper objects and bases for concepts. I suggested earlier (in §1.3.2) that Aristotle used the word "universal" primarily in a more generic sense. My reasons for thinking this will become clear as we proceed. At this point, however, I can note that he regards forms and kinds and sometimes analogous, successive, and focal groupings as universals. The evidence we will encounter below that sameness in form or kind does not require the existence of realist universals will confirm my identification of his "καθόλου" with the generic sense of our "universal".

As an advance on this argument, however, it is possible to point now to a passage to which I'll return later.

> It is not necessary that there be forms or some one thing besides the many if there is to be demonstration; however it is necessary that it be true to state one thing of many; for there will not be a universal if this is not so, and if there is not a universal, there will not be a middle, so that there won't be a demonstration. Therefore, there must be some one and the same thing applying to many non-homonymously. (*Posterior Analytics* I.11 75a5-9)

[31] Though, see Owens (1951 274) for a Moderate Realist account of focal unity.

Notice that here Aristotle treats the existence of a universal as dependent on its being true to state one thing of many. This is precisely the opposite of what we would expect if universal were being used in the Realist sense. Realist Universals are grounds for something's being predicable of many, so predicability is supposed to depend on the existence of such universals. Aristotle is in this passage at least using "universal" in a quite thin sense. If it is the case that one thing can be truly predicated of others—whatever the basis for this turns out to be—then, there is thereby a universal. Of course, this usage doesn't show that Aristotle isn't a Realist. He may hold that the basis for universality in this sense is the existence of an immanent universal. It shows merely that his use of the term universal does not commit him to any such thesis.

The contemporary usage of "universal", even in its generic sense, differs from Aristotle's usage in at least one important respect. Today universal and particular are often treated as contradictories, or at least as constituting a mutually exclusive and often jointly exhaustive division of some domain. Call this the "taxonomic conception". It is often assumed that Aristotle must have regarded universality in this way. For example, Sykes argues that Aristotle's definition of the universal as that which is predicated of many and of the particular as that which is not commits him to "a dichotomy between particular and universal which appears to be both exclusive and exhaustive".[32] But this cannot be right, because Aristotle never hesitates to call things particular that he elsewhere calls universal,[33] and he happily uses comparative phrases like "most universal", which would be inapplicable if universal was one of a pair of contradictories.[34]

As Aristotle uses the terms, universal and particular are contraries rather than contradictories, and more exactly they're relatives like "parent" and "child". To be a universal is to be predicated of some multiplicity, and the thing is universal *relative to that multiplicity*, with each of the multiple things being particular relative to it. This general usage is consistent with Aristotle occasionally using "particular" in a more restricted way to refer to that which is not predicated of any multiplicity at all (as he, perhaps, does at *De Interpretation* 7 17a39-b2)—

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[32] Sykes 1975 313. Cf. Albritton 1957 n.2.
[33] For example: health, sickness, justice, injustice, courage and cowardice are each called καθ' ἕκαστα in *Categories* 10 (13b37), fire and earth in *Metaphysics* Λ.1 (1069a29), and isosceles and scalene in *Posterior Analytics* I.5 (74a25-30). In *De Anima* I.1 (402b6-7), dog, man, and horse are καθ' ἕκαστα, but, in II.4 (414b32), man, plant, and beast are καθ' ἕκαστα. For further discussion, see Cooper (1986 28-31) and Owens (1981c 64-5).
[34] *Metaphysics* B.12 999a21-2, cf. *Posterior Analytics* I.2 72a4.

stretching terminology is par for the course for Aristotle.[35] And of course, universal's being a relative, does not prevent Aristotle for making claims about what holds of universals as such without making specific reference to the multiplicities relative to which they are universal, just as parent's being a relative doesn't prevent us from saying, e.g., that all parents are over seven years old.

The difference between Aristotle here and the contemporary view is a function of the advent of the predicate calculus where the distinction between universal maps neatly on to the difference between the subjects represented by lower case letters and the predicates represented by capital letters. A universal is a predicate and a predicate is a different type of thing than a subject. For Aristotle too, a universal is a predicate, but since he has a term logic in which the same term can play the role of subject in one proposition and predicate in another, he regards universality too as relative.

Aristotle does, however, have informal terminology that approximates to the taxonomic senses of "universal" and "particular". He distinguishes "suches" from "thises".[36] A this is an *individual entity* and a such is a *way* that an entity is—a way in which some other entity might also be. In *Metaphysics* Z.13 (1039a1) he tells us that all universals or "common predicates" signify "suches" rather than "thises".[37] Suchness unlike (Aristotelian) universality does not admit of degrees.

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[35] Elsewhere, Aristotle uses a more precise idiom to refer to the things that *De Interpretatione* 7 treats as particulars:

> It's clear, then, that some beings are not said by their natures (πέφυκε) of any others; for nearly each of the perceptible things is such as not to be predicable of anything, except by accident; for sometimes we say that this white [man] is Socrates and the approaching [man] is Callias. (*Prior Analytics* I.27 43a32-6)

This passage also sheds light on the use of πέφυκε in the *De Interpretation*'s definition of universal. The contrast the term makes is between natural and accidental predication (on which cf. *Posterior Analytics* I.22). It needn't, then, be taken to imply that universals have a nature in any more robust sense than is required to make sense of this contrast.

[36] See *Metaphysics* B.6 1003a9-12, Z.13 1039a1-6, *Posterior Analytics* I.31 87b28-30.

[37] It is worth noting however, that he does not say the converse that all suches are universals, and it is not clear that he would hold this, for being "such as Socrates is" (i.e., white, a man, snub-nosed, ironic, etc.) may qualify as a such, though it lacks the unity necessary to qualify to be a predicate and *a fortiori* to be a universal.

2.2 ARISTOTLE'S REJECTION OF MODERATE REALISM ABOUT KINDS

Kinds are the paradigm examples of universals in Aristotle's generic sense.[38] What would it mean for them to be universals in the "brand name" Realist sense and specifically to be immanent universals? An immanent universal is a qualitatively identical element or characteristic that exists, independently of the mind, in a number of different existents and can be abstracted by context-omission from their other (differing) characteristics and so serve as the proper object for a concept subsuming all the existents as instances. A kind, by contrast, is, in its most literal sense, a group or family of things, and a group cannot as such be an element or characteristic of its individual members. Clearly, then, in asking whether a kind is an immanent universal, we cannot be thinking of the kind primarily as the group. In fact, Aristotle defines kind, not as a type of group, but as a predicate:

> A kind is what is predicated in the what-it-is of many things which are different in form. (*Topics* I.5 102a32-1)

The question of what a predicate ultimately is for Aristotle is just the Problem of Concepts as it applies to him. For Aristotle to be a Moderate Realist about kinds would be for him to take this predicate to be a characteristic that exists identically in each of the forms. This immanent universal would then be the basis for each form's being a member of the kind (considered as a group). In asking whether kinds are immanent universals, we are asking whether predication and kind-membership are to be explained in this way.

2.2.1 Zoological kinds

Aristotle's most extensive discussions of kinds and their the relationship to forms are found in the *Metaphysics* I, *Parts of Animals* I.4, and *History of Animals* I.1. As is often the case with topics treated in both the *Metaphysics* and the zoological treatises, the *Metaphysics*' discussion is more abstract and (as Aristotle would say) more intelligible by nature, while the zoological

[38] For example, *Metaphysics* B.3 998b14-33.

discussions are more concrete and, therefore, more intelligible to us. For this reason, I will introduce Aristotle's conception of kinds through a discussion of zoological kinds (in §2.2.1) before turning (in §2.2.2) to the general account of the kind-form relation in *Metaphysics* I.

By "zoological kinds", I mean kinds of animals and of animal parts, behaviors, etc.—kinds whose study is part of the study of animals. We can begin our discussion of these kinds with a passage from *Parts of Animals* I.4 in which Aristotle rejects a proposed kind embracing flying and swimming animals.

> Nevertheless, they are correctly defined in this way {viz. without a wider kind subsuming them}. For, while, of kinds, whatever differs in accordance with degree and the more and the less has been yoked together under one kind, whatever is analogous {has been kept} separate. I mean, for example, that bird differs from bird by more or by degree (for one has long feathers, another short feathers), while fish differs from bird by analogy (for what is feather in one is scale in the other). (644a16-23)

It is striking that in this passage Aristotle treats kinds as manmade groupings, and I will return to this point in Chapter 4. What matters for our present purposes, however, is the more-and-less relationship between the forms of a kind. This relationship is elaborated in *History of Animals* I.1, where Aristotle contrasts sameness in form with sameness in kind:

> While some animals have all their parts the same as one another, some {animals have} different (ἕτερα) {parts}. Some of the parts are the same in form. E.g., a man's nose and eye are the same as {another} man's nose and eye, and {a man's} flesh {is the same} as {another man's} flesh, and {a man's} bone {is the same} as {another man's} bone, and the same goes for horse and the other animals—whichever ones we call the same as one another in form; for as the whole is to the whole, likewise each of the parts is to each {of the parts}. In other cases the {animals} are indeed the same but they differ with respect to excess and defect, whenever the kind is the same. By "kind," I mean, e.g., bird and fish; for each of these has difference with respect to kind, and there are many forms of fishes and birds. But, roughly {speaking}, the majority of the parts differ in themselves by oppositions of their affections—e.g., color and figure—one thing being affected more in a way that another is affected less (τὰ μὲν μᾶλλον αὐτὰ πεπονθέναι τὰ δ' ἧττον); still, {other parts differ} by multiplicity and fewness, and by largeness smallness, and, generally, by excess and defect. For some {animals} are soft-fleshed in the same {parts} in which others are hard-fleshed (τὰ μὲν γάρ ἐστι μαλακόσαρκα αὐτῶν τὰ δὲ σκληρόσαρκα), and some have a long beak and others a short one, and some are many-feathered and some few-feathered. Furthermore, even amongst these very {animals}, some differ in having different parts (ἔνιά γε καὶ ἐν τούτοις ἕτερα ἑτέροις μόρια ὑπάρχει)—e.g., some have spurs while others do not, and some have crests while others do not. But, so to speak, most parts, and the ones out of which the entire mass is composed, are either the same or differ by

> opposition and by excess and defect—for we can count the more and the less as a sort of excess and defect. (486a15-b17)

A hawk, then, is the same in kind, though not in form, as a duck, and the hawk's various parts—its beak, feathers, legs, etc.—are the same in kind with the corresponding parts of the duck. *Qua* same-in-kind, the hawk and duck (and their respective parts) differ in the more and the less—i.e., in the degrees of their various characteristics.[39] These more-and-less differences include differences in the shapes and sizes of the birds' parts, and differences in the parts' color, texture, location, composition, etc. The birds' activities, characters, and lifestyles (βίοι) also differ by the more-and-the-less. For example, hawks fly higher and swifter than ducks, and the different birds fly by subtly different motions.[40]

If we follow this line of thought through, it seems unlikely that there is any respect in which all and only birds—or, in general, all and only the forms of any kind—are *exactly alike*. More importantly, even if it happens that all forms of bird share some exactly identical characteristic, Aristotle gives us little reason to think that this is what makes them constitute a kind. He does say that a kind has "both a single common nature and forms that are not too far apart" (644b3), but this nature too must differ in the more and the less from form to form; for Aristotle finds more-and-less differences even in characteristics, like flying, which he tells us are part of the οὐσία of bird (693b12). If one removes all the characteristics in which Aristotle thinks birds differ in the more and the less, one is left with no remaining characteristics that could constitute the common bird-nature.[41] Thus the unity of the kind bird must lie, not in some identical characteristic shared by birds, but rather in something about the way in which birds differ from one another.

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[39] Lennox 1985 and 1987b contain extensive and illuminating analysis of sameness-in-kind and the more-and-less relationship in the zoology and on the relationship between the zoology and the central books of the *Metaphysics*. I draw heavily on his account throughout §2. For a different interpretation of sameness in kind, see Charles 2000, Chapter 12.

[40] *Parts of Animals* IV.12 693b28-a8 tells us that characteristics of wings vary according to whether the birds fly and that different birds fly for different reasons, some because they're predators and others to escape danger or to migrate. This and other differences leads to different ways of flying. Predatory birds fly with their legs drawn up into bellies, ready to grasp at prey (694b25), but longer-legged, marsh-dwelling birds stretch their legs out behind them in flight to compensate for their shorter tail feathers (694b19-20 cf. *History of Animals* II.12 504a32-4 and *Progression of Animals* 10 710a3-b3). See also, *Parts of Animals* IV.13 on the differing movements and parts by which the different forms of fish swim, and *History of Animals* VII 588a16ff (especially a25, b8, b22, and 589a1) and VIII 606a11-20, b1-18.

[41] On the possibility that the single nature could be a common matter from which all birds are formed see below §2.3.1.

We can bring out this point by contrasting Aristotle's view on sameness-in-kind with the Socratic View of Concepts.[42] Recall the following passage from the *Meno* (72b-c):

> Socrates: …if, when I asked what the ὀυσία of bees is, you said that they are many and varied, what would you reply to me, if I asked you: "Do you claim that they are many and varied and differ from one another in being bees (τῷ μελίττας εἶναι)? Or do they not differ at all (οὐδὲν διαφέρουσιν) in this way but in some other way—such as in their beauty or their size or in some other such way?" Do tell, what would you answer when questioned in this way?
>
> Meno: That's {what} I {would say}, that they do not differ at all from each other in their being bees.
>
> Socrates: If, after this, I said "Then, tell me, Meno, this thing itself, in which they do not differ at all but are wholly the same (ταὐτόν εἰσιν ἅπασαι), what do you claim it is?", perhaps you would have something to say to me?
>
> Meno: I would.

If Aristotle thinks that bees are one in form,[43] he might answer Socrates' questions as Meno does. But Socrates would expect the same sort of answer to the corresponding questions about birds and fish. In these cases, Aristotle would have to answer differently. There need be no respect in which all birds are "wholly the same and don't differ at all from one another". Aristotle seems to think that birds exhibit more-and-less differences from one another in every respect relevant to their being birds. If there is no identical characteristic shared by all and only birds, then there is no Socratic Form of bird—no immanent universal that can serve as a the proper object for the concept "bird".

When we move from the zoology to the metaphysics, as we will in earnest in the next section, we can see Aristotle repeatedly and explicitly contradicting Socratic position. For example, where Socrates expected the instances of concepts to share some "thing itself, in which

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[42] See §1.2.2.

[43] Whether he does is not clear. In *History of Animals* V.22 (554b8-22), Aristotle briefly discusses different bees from different regions and he may intend these to be forms of bee, in which case bee would be a kind rather than an uncuttable form. Aristotle does not refer to these different sorts of bee as forms, and most likely he does not regard them as such because he elsewhere attributes these sorts of differences to differences in diet (624b28-31). Interestingly, in the same chapter, he speaks of there being several kinds of bees, where he has in mind the difference between, e.g., drones and workers. If these differences are due to material factors (as Aristotle thinks the difference between male and female is) then they would qualify as distinct kinds in the relevant sense. But Aristotle does find it remarkable that such different bees are generated by the same parents, and he may think of bee as a kind with drone and worker as its forms (or sub-kinds).

they do not differ at all but are wholly the same", *Metaphysics* I.8 defines a kind as a same thing which is non-accidentally different. He continues:

> not only must the common {thing} belong—e.g., both are animals—but this same animal must be other for each—e.g., horse for this one, but man for that one. (1057b38-a4)

In taking this stand and rejecting the position assumed by Socrates in the *Meno*, Aristotle rejects Moderate Realism about zoological kinds, and indeed about kinds generally—he rejects the view that (e.g.) birds constitute a kind by possessing some characteristic in which they do not (qualitatively) differ at all.

Of course there are many characteristics which are (and were recognized by Aristotle to be) shared by all birds. Birds all have a head, a beak, two wings, two legs, feathers, etc. But each of these shared features is the same only *in kind*. Feather, for example, is itself a kind, with each form of bird having its own form of feather, which differs from other feathers in breadth, color, texture, oiliness, numerousness, etc. The same is true for all the significant features common to birds. Far from being identical characteristics shared by all birds, these are the very respects in which each form of bird differs from the rest. And, just as we need to account for how it is that the many differing forms of bird are all birds, we need to account for how their many differing forms of feather or beaks are all feathers or beaks. Aristotle refuses to give the answer Socrates would have demanded. We have seen that he denies that there need be any characteristic in which the members of a kind do not differ at all. In the next section we'll see that he has deep reasons for this.

For now we can conclude that Aristotle must conceive of the characteristics possessed by birds or feathers in general as *ranges* within which (or *axes* along which) the specific characteristics of each form fall. He implies this when he tells us that part of what makes several forms constitute a kind is that they are "not too distant" (*Parts of Animals* I.4 644a3). Such ranges cannot qualify as an immanent universals for two reasons. First, it is doubtful that something's length (i.e., its merely *being long*) can be distinguished from how long it is, in the way that an immanent universal was supposed to be distinguishable from the "individuating notes" that accompany it in an individual. More importantly, however, even if length were an immanent universal, it would provide a basis for the concept "length" (or maybe "long thing") but not for the concept "feather". It is not length in general that is characteristic of feathers but only a certain range of lengths, and even if we supposed that length-as-such could be found in

each long thing by an act of analysis, the range-as-a-whole would not be present in each of the items within it and could not be abstracted from any one of the items taken in isolation.

Of course, neither length nor feather-length is likely to be put forward as the immanent universal corresponding to the concept "feather". I focus on length because the point about ranges is easiest to see in this case. What holds for length holds also for all of the general characteristics of feather, including those (e.g. shape and function) that are more likely to be identified with the Socratic form of feather. All these characteristics are ranges, and ranges are unlike immanent universals ontologically and epistemologically. Thus there can be no Socratic form of feather; and, in general, there can be no immanent universals corresponding to concepts of Aristotelian zoological kinds.

2.2.2 Kinds as determinables

The relationship that holds between Aristotelian kinds and their forms is well expressed by a set of terms popularized in 20th Century logic by W. E. Johnson.[44] A kind is a *determinable* of which its forms are *determinates*. Johnson explains the distinction as follows:

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[44] The idea that Aristotelian kinds are determinables is now relatively common, though I do not think that its full significance is often appreciated. To my knowledge Granger (1980 and 1992) was the first to describe the kind-form relation in Johnson's terminology. My position differs from Granger's in two important respects: (1) Granger thinks that Aristotle "treats the genus as though it were a determinable of its differentiae," without having "a clear idea of the determinable-determinate relation" (1992 82), but I see no reason to think that Johnson's or Granger's idea of the relation is any clearer than Aristotle's. As I argue below, Aristotle makes every essential point about the relation that Johnson does. (2) I disagree with Granger's thesis that the determinable-determinate conception of the genus-differentia relation is the last of three incompatible views of the relation that Aristotle held during different periods of his career. The three views are: (i) that the genus is an οὐσία and the differentia an attribute, with the genus being the more "important" element in the definition, (ii) that the genus and differentia are both attributes and of equal importance, (iii) that the genus is a determinable attribute of which the differentia is a determination and that the differentia is the more important element in the definition. In fact there is no conflict between the texts that Granger takes to belong to these different stages (many of which he finds only lines apart from one another). A genus marks out a class of οὐσίαι by a determinable attribute, and a differentia is a determination of that attribute. The appearance of conflict is caused by engaging in vague talk about the "importance" the different parts of the definition and by ignoring *Categories* 5 3b18-21 where Aristotle tells us that a secondary οὐσία (i.e. a kind or form) signifies neither a τόδε τι nor a quality *simplicitor*, but rather a quality that marks off an οὐσία or an οὐσία of certain qualification. Not only is there no conflict that needs to be explained away by Granger's dubious developmental thesis, but adopting the thesis would force us to conclude that there are serious logical problems with Aristotle's metaphysical project. Had Aristotle rejected the premise that a genus and its differentia fall in different categories, he would have undermined his argument that being and unity cannot be γένη, for that argument turns on the premise that a genus cannot be said of its differentiae (*Metaphysics* B.3 998b21-27). The idea that being and unity are not genera, is central to Aristotle's metaphysical enterprise, and to his reasons for asking the questions that lead him to the determinable-determination view of the genus-differentia relationship.

I propose to call such terms as colour and shape *determinables* in relation to such terms as red and circular which will be called *determinates*; and, in introducing this new terminology, to examine the distinction between the relation of *red* to *color* and the relation of *Plato* to *man*...

{W}e have, then, to contrast the significance of the relation 'belonging to' when applied in one case to a determinate and its determinable and in the other to an individual and its class. If it is asked why a number of different individuals are said to belong to the same class, the answer is that all these different individuals are characterized by the same adjective or combination of adjectives.[45] But can the same reason be given for grouping red, yellow and green (say) in one class under the name colour? What is most prominently notable about red, green, and yellow is that they are different, and even, as we may say, opponent to one another; is there any (secondary) adjective which analysis would reveal as characterizing these different (primary) adjectives? In my view, there is no such (secondary) adjective; in fact, the several colours are put into the same group and given the same name colour, *not* on the ground of any partial agreement, but on the ground of the special kind of difference which distinguishes one colour from another; whereas no such difference exists between a colour and a shape. Thus red and circular are adjectives between which there is no relation except that of non-identity or otherness; whereas red and blue, besides being related as non-identical, have a relation which can properly be called a relation of difference, where difference means more than mere otherness. What is here true of colour is true of shape, pitch, feeling-tone, pressure and so on: the ground for grouping determinates under one and the same determinable is not any partial agreement between them that could be revealed by analysis, but the unique and peculiar kind of difference that subsists between the several determinates under the same determinable, and which does not subsist between any one of them and an adjective under some other determinable. If this is granted, the relations asserted in the two propositions 'Red is a colour' and 'Plato is a man,' though *formally* equivalent, must yet be contrasted on the ground that the latter but not the former is based on an adjectival predication. For the latter is equivalent to predicating 'human' of 'Plato,' while, without denying that some adjectives may properly be predicated of (the adjective) red, yet the proposition 'Red is a colour' is *not* equivalent to predicating any adjective of red. (Johnson 1921 174-6)[46]

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[45] By "adjective", Johnson means the predicate of a proposition, as opposed to subject (which he calls "substantive"). When I speak of kinds as determinables, I mean kinds-*qua*-characteristics. To say that a kind is a determinable is equivalent to saying that the characteristic(s) in virtue of which forms belong to the kind-*qua*-group is a determinable, determined differently in the kind's different forms. This is in keeping with the way that Aristotle treats kinds and forms in *Categories* 5 (see previous note).

[46] Interestingly, Johnson thinks that:

> The distinction and connection between substantive and adjective correspond to—and, in my view, explain—the distinction and connection between particular and universal. Ultimately a universal means an adjective that may characterize a particular, and a particular means a substantive that may be characterized by a universal. The terms particular (or substantive) and

There are three key points that we should take from the Johnson passage; I will label them J1-J3:

> J1. Certain things are not merely other than one another—as blue is other than both loud and inflation—but are different from, or "opponent to" one another, as blue is different from red.
>
> J2. Things that differ from one another in this way can, on the basis of this difference, be grouped together as alternative determinates of a single determinable.
>
> J3. The grouping of determinates of a single determinable together is not based on any qualitatively identical characteristic that is shared by each determinate and revealed by an analysis of it.

J3 is implicit in J1 and J2, and it captures the difference between determinables and immanent universals—the difference between Aristotelian kinds and Socratic forms. This point is easily illustrated if one keeps in mind that the determinable-determinate relationship can be iterated. Red is a determinate of color, and scarlet a determinate of red. In the last section, I entertained the possibility that a widest determinable (e.g., length or color) is an immanent universal and suggested thinking of it as an axis that it could somehow be discovered by an analysis of the items situated along it. But even if we allow that color is an immanent universal shared by red and blue, red will still not be a second immanent universal shared by scarlet and crimson and discoverable by analysis of them. Thus the concept "red" cannot be formed by context-omission and there must be some other process by which it is formed.[47] Once we admit the existence of

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> universal (or adjective) cannot be defined as functioning in isolation, but only as they enter into union with one another. (11)

He goes on to attribute the idea that particulars lack character to a confusion between an epistemological and a metaphysical sense of "characterize".

[47] In the literature on determinables one finds the points that a determinate cannot be understood as a conjunction of the determinable and some other feature and that the determinate cannot, therefore, be analyzed into the determinable and this other component as bachelor can (supposedly) be analyzed into "man" and "unmarried". However, neither this literature nor the literature on Aristotelian kinds (insofar as it recognizes them as determinables) has much to say about the logical or psychological operation by which we comprehend a determinable. In both literatures determinables are often characterized as "disjunctive" (Sellars 1961b 26, Armstrong 1978b 119-20, Balme 1987c 304-527 n.1, Sanford 2000). This creates an impression that one thinks of a determinable by thinking disjunctively of its various determinations, e.g. that to think "red" is to think "scarlet or crimson or Cherokee red or ...", but this clearly cannot be right. First, this gives determinable thoughts a complex, disjointed character that they introspectively lack. More importantly, such disjunctive strings could never exhaust determinables like length, which cannot be resolved into discrete uncuttable units. Similarly, in the case of color, though it may ultimately be resolvable into discrete, uncuttable shades, one clearly does not form the concept "color" (or a concept of a particular color) by disjoining each shade singly; for, as Hume famously pointed out, one can form the concept "blue," even if there are shades of blue that one has not seen (*Essay Concerning Human*

such a process, it is natural to suppose that "color" also was formed by it. This supposition is more economical than positing two distinct processes of concept-formation, and it remains doubtful that even "color" could be formed by context-omission.

As we will see in a moment, Aristotle commits himself to J1 and J2 about kinds in *Metaphysics* I. Since these two points define the determinable-determinate relation, there is no anachronism in saying that Aristotelian kinds are determinables. Indeed, we can go further, since, as we'll see, Aristotle took these points to define what it is to be a kind, we ought to recognize Aristotle as the originator of this distinction.[48]

J1, the distinction between otherness and difference, can be found in *Metaphysics* I.3-4:

> But difference (διαφορὰ) and otherness (ἑτερότης) are distinct (ἄλλο). For, while the other and that which it is other than are not necessarily other in something (for everything that is some being is either other or the same), the different differs from something in something, so that it's necessary for there to be something the same in which they differ. This same thing is a kind or form; for every different thing differs either {i} in kind or {ii} in form: {i} in kind, those things of which the matter is not common and there is not coming-to-be into one another (ἄλληλα)—e.g., whatever is in another (ἄλλο) figure of predication; {ii} in form those things whose kind is the same (kind meaning that same thing which both of the different things are said to be with respect to οὐσία).
>
> Contraries are different, and contrariety is a certain difference. The rightness of this supposition is clear from induction; for all are evidently different and they are not merely other—rather, in some cases, the kind is other and, in other cases, it's in the same column of predication, so that they're in the same kind and are the same-in-kind. (It's distinguished in other works {what is} the same or other in kind.) Since the differing things can differ from one another in the more and the less, there is some greatest difference, and I call this contrariety. It is clear from induction that contrariety is the greatest difference. For, while things that differ in kind do not have a way to one another (rather, they keep entirely apart and are

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Understanding 20-21). Clearly, then, the formation of these concepts must involve a projection, from a set of discrete instances, of the entire range, as a single whole. There is an interesting discussion of this issue, though in different terms, in Rand 1990 (cf. Peikoff 1991 Chapter 4 and Gotthelf 2003). Gotthelf explores the relation between Rand and Aristotle's views of concepts in his 2005. In his 2002, he discusses both views, and that of Locke, in light of the literature on determinables. However this paper pays little attention to the issue that I am taking pains here to stress (and on which I find Rand's account valuable), namely the logical and/or psychological operation(s) by which determinables are conceptualized. Consequently, in that paper, Gotthelf treats concepts of determinables along essentially Realist lines, whereas I am arguing that concepts of determinables do not admit of Realist analysis.

[48] Johnson's conception of determinables and their determinates almost certainly derives from the closely related scholastic conception of determinables and their determinants, which they thought of as deriving from Aristotle. On the relation between Johnson's view and the Scholastics' see A. N. Prior 1949 and the references therein. The details of this history need not concern us here. Johnson did initiate a renewed discussion of the relation and drew attention to features of it that had been under-emphasized by the scholastic tradition. It is these very features that, I'm arguing, make it incompatible with Moderate Realism.

> incommensurable), comings-to-be for things that differ in form are from contraries as extremes; and the distance between extremes is greatest, so that between contraries must be as well. (1054b22-a12 cf. 1018a9-15)

It is clear that "kind" is being used here in the same sense as it appears in the zoological passages discussed in the last section; for Aristotle tells us here that the differences between kind-members are "in the more and the less" (1055a3).[49] And the reference to contrariety as the limiting case of difference makes it clear that such things stand in the same sort of "opponent" relation described by Johnson. Before we can take much more from this passage, however, it is necessary to deal with a confusing inconsistency in its terminology.

Initially, Aristotle seems to say that, for two things to differ (as opposed to being merely other), they must be the same in some respect, either in form or in kind, and that the respect in which the things are the same is the very respect in which they differ. For example: unlike the relationship between red and sweet, which is mere otherness, the relationship between red and blue is one of difference, because there is a respect in which red and blue differ. The respect, of course, is color; so, red and blue are the same in that they are both colors and it is color in which they differ. Since color is the kind, red and blue differ by being the same in kind. Since this same kind is the respect in which red and blue differ, they can be said to "differ in kind". This is a quite different sense of "differ in kind" from the one that would be the contrary of "same in kind"; for it is only things that are the same-in-kind (i.e., things of the same kind) that can differ-in-kind (i.e., have their same kind serve as the respect in which they differ). If understood in this way, the terminology is confusing but coherent. However this coherency breaks down when Aristotle explains what he means by things that differ in form and in kind. We would expect, e.g., man and horse (two forms of the kind animal) as examples of things that differ in kind, and two men as examples of things that differ in form. Instead, he tells us that the things that differ in form are "those things whose kind is the same" (e.g., man and horse); and, as an example of things that differ in kind he gives us "things whose figure of predication isn't the same"—presumably, members of different categories. So, by the end of the passage "different in kind"

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[49] Also in H.2 (1042b25) Aristotle also speaks of the excess-and-defect in the way that forms of a kind differ, though it is not absolutely clear whether he means to say that the forms themselves differ in this way or, as Ross (1924b 229) thinks, only that their perceptible affections do. Rorty (1974 75-6) argues in support of Ross' reading by picking up on one of the examples in the passage and asking: "How could a lintel be said to differ from a threshold in respect of more and less?" The answer is simple. Aristotle has just told us that a lintel differs in position from a threshold. This amounts to the lintel's being *higher up*—i.e., more distant from the ground.

seems to mean "in different kinds" and "different in form" seems to mean "in different forms". But this is a poor fit with the passage, according to which things cannot differ unless they have something in common. What is it that the members of two different categories have in common in virtue of which they differ?

In short, it is unclear whether, in this passage, the locution "difference in X" (where X stands for "form" or "kind"), refers (a) to the relation between two differing members of a single X or (b) to the relation between two different Xs. The two interpretative options make the passage say quite different things about how the members of a form relate to one another and how the members of one kind relate to the members of other kinds. However, for our immediate purposes we can set the interpretive difficulty aside, because either reading yields the same account (though in different terms) of the relation between the forms of a kind. The difference between two forms of a given kind is underwritten by their sameness-in-kind. The fact that a man and a horse are both animals provides a respect in which man and horse can differ, whereas two entirely disparate items, like a horse and inflation, cannot differ (at least not in the relevant way).

In other contexts, Aristotle refers to the relationship between two differing forms of the same kind as "otherness in form" (rather than mere otherness). With this in mind, we can turn to the opening of I.8:

> That which is other in form than something is other in something, and this thing must belong to both—e.g., if an animal is other than an animal, both are animals. Necessarily, therefore, things other in form are in the same kind. For this is what I call a kind: the one same {thing} said of both that is different, not by accident (whether matter or otherwise). For not only must the common {thing} belong—e.g., both are animals—but this same animal must be other for each—e.g., horse for this one, but man for that one. That's why the common {thing} is other in form {for one} than {it is} for the rest (ἀλλήλων). In themselves, then, this one will be such an animal and that one will be such {an animal}—e.g., this one {will be} a horse, and that one {will be} a man. Necessarily, therefore, this difference is an otherness of the kind. For I call a "difference of the kind" an otherness that makes this itself different. (1057b35-a8)

Pellegrin comments that Aristotle's formulations in such passages "ring with a Hegelian sound in our modern ears".[50] To ancient ears, they may have had a more Heraclitean ring.[51] For

[50] Pellegrin 1986 56.
[51] Cf. DK 51: διαφερόμενον ἑωυτῷ ὁμολογέει, "differing it agrees with itself".

all three philosophers, the air of paradox is due to the attempt to articulate the intimate connection between differing things that makes them different rather than disparate. For Aristotle, the forms of a kind aren't disparate phenomena but variations on a theme, alternative versions of the same thing. But the sameness they share isn't something that exists identically in each of them that can be contrasted to their differing forms as the control in a scientific experiment can be contrasted with the variables. Rather the thing that is the same, the kind, is the very thing *in which* the different forms are other than one another—it is the respect in which the various forms of the kind vary.

The kind is, thus, the determinable embracing its forms as alternative determinates. Indeed being determinable in this way is what it is to be a kind; "for that is what I call a kind: the one same {thing} said of both that is different, not by accident". This definition of amounts to an endorsement of J2, which effectively defines the determinable as that which is predicated of each of a group of things because they differ from one another (as understood in J1).

J3—that the determinable (or kind) cannot be discovered in its determinations (or forms) by analysis—is implied by thinking of kinds as determinables. As I stressed in the last section, if "animal" does not designate something that exists identically in men and horses, but is itself different in a man than it is in a horse, then man cannot be discovered by an analysis of Socrates.[52]

2.2.3 The kind-form relationship as allowing for the unity of definition

The intimate determinable-determination relationship that Aristotle thinks holds between a kind and its forms allows him to resolve a puzzle about definition that is intractable if one accepts Plato's Theory of Forms, but which must be solved if one is to have an adequate theory of ὀυσία. The puzzle is laid out in *Metaphysics* Z.12 and again in H.6:

> Now let us speak first of definition, to the extent that it has not been discussed in the *Analytics*; for the puzzle that's been spoken of there is applicable to our accounts about substance. I mean this puzzle: that whose account we call a

[52] For useful discussion of the relation between determinables and universals as those two terms are understood in the recent literature, see Johanssen (2000). His arguments that there can be determinable immanent universals, however, depend on a conceptions of the Problem of Universals and of realism which I rejected in §1.3.

> definition, why in the world is this one thing? Take, e.g., man, i.e., biped animal—let this be its account. Why, then, is this one thing and not many, animal and biped? (1037b8-15)
>
> Yet whatever is in the definition must be one, for the definition is a certain single account and of an ὀυσία, so that it must be an account of a single thing; for ὀυσία signifies a certain one and a certain this, as we say.
>
> Now a definition is one account, not by a bond in the manner of the *Iliad*, but by being of a single thing. Well, then, what is it that makes man one? Why is it one thing, not many, e.g., both animal and biped?—especially, indeed, if there are, as some say, a particular animal-itself and biped-itself? Why aren't those "themselves" man, and the man will exist by participation not in man—not in one thing—but in two, animal and biped, and generally animal won't be one, but more than one: animal and biped? Clearly, then, for those who purse defining and giving accounts as they're accustomed, it's not possible to answer and solve this puzzle. (1045a12-22)

The puzzle can be restated as follows: given that a definition has parts—a genus (kind) and at least one differentia (difference)—how can either the definition or its definiendum be unitary? This problem is inherent in Realism as such—in the view that a concept is an awareness of a mind-independent unitary object. While one can posit such an object as the basis for any given concept, one cannot posit a second such object as the basis for a superordinate concept without jeopardizing the unity of the initial object. Suppose for example that man is a Platonic Form; if animal and biped are also Platonic forms, and man is biped animal, then man is a pair of Platonic Forms (or perhaps a trio) rather than one.

The problem faces Moderate Realism no less than Extreme Realism. Suppose that, having analyzed some particular bee, we have isolated the bee-form—the element or characteristic shared by all bees which serves as the proper object of our bee-knowledge. Since one of the things we know about bees is that they are animals, being an animal would have to be part of the bee-form. If it's not, then it's not something we know about bees as such. Animal in particular must be part of the bee-form, since animal is part of the definition of bee and definitions are accounts of forms. But, if animal-form is part of bee-form, then the bee-form isn't one thing after all, because it will have to be itself analyzable into animal-form and some distinct form that differentiates bees from other animals. How then does this pair of forms qualify as a unitary object? It would seem to be no more of a unity than the pairing of animal-form with the distinctive size or beauty of some particular bee. Thus Moderate Realism undercuts itself as soon

as one tries to apply it to the concepts in terms of which we know things about the universals that are the supposed object of any given concept. Realism was developed to account for the possibility of unitary knowledge of a swarm of bees, but it leaves us no better off, groping with the swarm of forms into which it requires us to analyze each bee.

To answer this objection, a Realist would have to posit some special relationship between any given form and the other forms in terms of which it is known or defined. Aristotle is dismissive of such posits. He regards them as ad hoc, complaining that terms in which the Realists describe the relevant relationship are empty or absurd.[53] His own view is that the puzzle is a sign that there was something wrong with the conception of the kind-difference relationship that led to it. The puzzle dissolves when we abandon the Socratic/Platonic notion of an identical universal cohabitating with differentiating features.

Aristotle introduces his solution to the problem in Z.12 and elaborates on it in H.6. In both passages he proceeds by assimilating the kind to matter:

> If, then, the kind does not exist *simpliciter* besides the forms (as {the forms} of a kind)—or, if it does, it exists as matter (for voice is the kind and matter, but the differences make the forms and the letters out of this)—, then it's clear that the definition is the account out of the differences. (1038a5-9)

> But if, as we say, one {part of the definition/definiendum} is the matter and the other is the form, and the one potentially and the other actually, then the topic of investigation would no longer seem a puzzle. For this puzzle is the same even if the definition of cloak were rounded bronze; for then this name would be a sign of the account, so that the topic of investigation is: what's the cause of the unity of the rounded and the bronze. But then it's clear that there's no puzzle any longer, because the one is matter and the other form. (1045a22-30)[54]

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[53] Z.14 1039b5-7, H.6 1035b8-21.

[54] I am assuming the generally accepted interpretation of these passages, according to which Aristotle explains how genus-differentia definitions (and their definienda) constitute unities by assimilating, comparing, or identifying the genus with matter and the differentia with form. Bostock (1994 280-3) advocates an alternative interpretation, according to which H.6's point is that we ought to abandon genus-differentia definitions altogether and replace them with definitions whose components are form and matter. Bostock finds three problems with the more standard interpretation of the passage that lead him to prefer his alternative (though he recognizes that it too is problematic). Bostock's problems are: (1) he thinks the standard interpretation requires us to understand 1045a20-2 "in an unnatural way"; (2) the standard interpretation relies on the identification of genus with matter which isn't stated in H.6 and which he thinks is "by no means a standing feature of Aristotle's thought"; (3) Bostock doesn't see how the example of the unity of bronze and sphere can be used to explain the unity of genus and differentia. I submit that these are not problems with the standard interpretation, but failures to appreciate the significance of the view of kinds that Aristotle advocates throughout the *Metaphysics* and which I've been explicating. I'll address Bostock's problems briefly in turn: (1) 1045a20-2 reads: φανερὸν δὴ ὅτι οὕτω μὲν μετιοῦσιν ὡς εἰώθασιν ὁρίζεσθαι καὶ λέγειν,

A thing's matter is not something distinct from the thing, but is rather the thing itself insofar as it is capable both of being what it is (i.e., of realizing its form) and of being other than what it now is (i.e., of lacking the form). It is the thing *qua* potential, where the potentiality for any given thing is also the potential for certain alternatives. Matter is potential or *ability*; it is the ability to be formed—i.e., specified or *determined*—in any of several competing ways. To assimilate kind to matter, then, is precisely to say that a kind is a *determinable*.[55] Since a

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οὐκ ἐνδέχεται ἀποδοῦναι καὶ λῦσαι τὴν ἀπορίαν, "Clearly, then, for those who pursue defining and giving accounts as they're accustomed to, it's not possible to answer and solve this puzzle". Bostock thinks that if we accept the standard interpretation, then we are forced to take the λέγειν to refer to explanations that Aristotle's predecessors give of definitions on which Aristotle and the Platonists agree (e.g. "biped animal"). This reading would indeed be unnatural, but the standard interpretation doesn't call for it. Aristotle's targets in this passage are presumably the Platonists and Aristotle disagrees with their method of defining by division, which he criticizes in Z.12. At each step in a division, the Platonists introduce a new, independent differentia, where Aristotle thinks they need to divide by a differentia of the differentia from the previous stage in the division. Unlike the Platonists, Aristotle treats the old differentia as a determinable and seeks a new differentia that is a determinate of it. Thus his definitions are of a different sort from the Platonists', and he is able to account for the unity of all the differentiae in one of *his* definitions. Once we accept this approach, though, it is easy by the same tactic to unify the differntia(e) with the genus if we understand the genus too as a determinable. If, on the other hand, we define as the Platonists do, by introducing independent characteristics at each stage, we will not get unitary definitions and will not be able to solve the ἀπορία. (2) The assimilation of γενός to matter is not nearly so unusual as Bostock would have us believe. We've already seen several cases of it and we'll see more as we proceed. More importantly, the assimilation of γενός to matter is a means of expressing the determinableness of γένη, and this issue is in the forefront whenever Aristotle discusses γένη in the *Metaphysics*, whether or not matter is mentioned. (3) As Bostock acknowledges, his third problem is a problem for his interpretation, as well as (he thinks) for the standard interpretation, so it is no reason to prefer his to the standard. I don't think that it is a problem for the standard interpretation.

[55] Ironically Aristotle's account of the unity of definitions is recapitulated in a distinction drawn by some 20th Century logicians between genera and determinables. Searle explains the distinction:

> {The relation of determinable to determinate} is logically distinct from the relation of genus to species. The denotation of a species term is marked off within the denotation of the genus term by the possession of properties known as the differentia. The species is thus to be construed as formed by the conjunction of two logically independent terms... Both the genus-species relation and the determinable-determinate relation are relations of the less specific to the more specific, but in the former case the specification is provided by some property logically independent of the genus, whereas in the latter case the determinate cannot be specified by adding additional independent properties to the determinable.
>
> This characteristic has been emphasized by Johnson, Cook-Wilson, Prior, and Searle; and it is this feature which chiefly justifies the introduction of this terminology to the traditional arsenal. (Searle 1967 357-8, cf. Granger 1980 37-8)

Aristotle has no use for alleged genera that are logically independent of their differentia. A "definition" reached by combining such components would yield only an accidental unity like white man, and Aristotle would not accept it as a definition at all. He maintains that only forms of a kind (species of a genus) can be defined, and this claim would be empty if just any class wider than a prospective definiendum qualified as a kind. (See *Metaphysics* Z.4 1030a11-16.) A kind for Aristotle must be logically related to its forms as a determinable. Thus, Aristotle would not agree with Searle that there is a justification for the adding the determinable-determination relation to one's arsenal. He had already given this function to the γενός, having debunked the Platonic notion that Searle attaches to the word "genus". (Searle's reference to Cook-Wilson and Prior is somewhat misleading. While both stress the difference between determinables and the conception of genera which Searle assumes, neither sees this conception of genera as

determinable itself differs in each of its determinations it cannot be discovered by analysis and abstracted by context-omission—it cannot be the proper object of a concept, it cannot be an immanent universal. Thus Aristotelian kinds cannot be immanent universals and Aristotle could not have been a Moderate Realist about kinds.

2.3 ARISTOTLE'S ASSIMILATION OF KINDS TO MATTER

The distinction between matter and form is introduced in the context of natural science as a device for explaining coming to be and passing away.[56] Throughout the corpus the paradigmatic case of matter is that out of which an οὐσία comes to be, and this is certainly the case in the central books of the *Metaphysics*, which grapple with (amongst other things) ἀπορίαι generated by Aristotle's hylomorphic ontology of the natural world. When, in these same books, Aristotle describes kinds as matter, he is clearly assimilating them in some way to this "physical matter". What is less clear is the exact nature of this assimilation. Is Aristotle saying that kinds are physical matter or merely that they are *like* it? And, if the latter, like in what way? Answering these questions is necessary both for a general understanding of sameness in kind and, more specifically, to dispel any remaining doubts that Aristotle rejects Moderate Realism about kinds. For, arguably, if the kind is physical matter, then this matter is something identical shared by the many forms, and so may qualify as an immanent universal. Similar arguments might be made even if the kind is merely like physical matter, depending on the nature of this likeness.

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obligatory. Prior recognizes the presence of determinable genera in the Aristotelian tradition and does not think it is obligatory to view the "genus" as independent from its differentiae. Wilson [1926 §§155-160, §§406-414], echoing Aristotle, insists that a true genus must be a determinable.)

[56] *Physics* I.7-9, *Generation and Corruption* I.1.

2.3.1 Is something's kind its physical matter?

The view that Aristotle means to identify something's kind with that out of which it comes to be has been argued for (most notably by Richard Rorty) largely on the grounds that any other reading would yield only a "vague analogy" between kind and matter, whereas Aristotle says that the kind is matter (rather than that it is merely like it).[57] This is a bad argument because it takes the literal meaning of the term "matter" to be exhausted by the stuff out of which οὐσίαι come to be, whereas Aristotle has no qualms about ascribing "intelligible matter" or even "matter for change of place" to things that he is adamant do not come to be or possess the sort of matter out of which something might come to be.[58] Matter extends more widely than physical matter.[59] Someone might try to argue that all non-physical matter is matter only by analogy to physical matter; but this would be presupposing that physical matter is not itself an analogical concept, and to call the seed or menstrual fluid from which plants and animals come to be matter is already to speak analogously.

In its original sense, ὕλη refers to timber; it refers in an extended sense to other materials like bronze,[60] and it is a further extension to apply it to the stuffs out of which plants and animals come to be. Consider the sort of reasoning involved at each stage in this progression. Bronze is called ὕλη because it stands to (e.g.) statues as timber (to which the term is initially restricted) stands to (e.g.) beds. We now have a wider concept than "timber" call it "craft matter". We get to the concept of "physical matter" by noting that there are things that stand to plants and animals as craft matter stands to the products of crafts. Each stage denotes a broadening of the concept of matter to admit things that are analogous to already recognized varieties of matter. This is, presumably, what Aristotle means in telling us that (physical) matter is "known by analogy".[61] This process does not introduce "vagueness". Quite the reverse, indeed, it often allows us to understand more deeply the initial referents of the newly extended concept. (We will see in Chapters 3 and 4 that this is part of how Aristotle thinks we achieve precision in our knowledge.)

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[57] Rorty 1974 72, on which see more below.
[58] See *Metaphysics* H.1.
[59] And "physical matter" is even a slight misnomer insofar as the star's matter for change of place is no less natural than the matter out of which plants and animals come to be.
[60] Liddell, Scott, and Jones 1940 1847-8.
[61] *Physics* I.7 191a7-9.

Notice, that at each stage in the progression, the relationship between the instances is more abstract than at the previous stages. Timber is worked up into beds by a particular craft, but craft matter generally is that which can be worked up by any craft into a product, and this matter and seed and menses have in common only that they can be worked on by some agency to yield something else. In the *De Anima* we find matter defined even more abstractly: it is "that which in itself is not a this" (*De Anima* II.1 412a7, *Metaphysics* H.1 1046a26). This conception of matter may already be broad enough to include such things as matter for change of place and kinds understood as something distinct from physical matter, and if it is not, then the further extension to include them, need be no vaguer or less "literal" than its narrower predecessors.[62]

There is no reason to think that the only way to read Aristotle literally is to interpret him as identifying kinds with physical matter. But might he nonetheless have held this? What would such an interpretation amount to? A given thing's kind couldn't be the parcel of matter that made it up (which wouldn't be shared with its members), it would have to be something like matter of a certain form.[63] Nor could the kind be the matter in any sense that would demand us to give a single answer to the two questions "What kind of thing is this?" and "What is it made of?".[64] The

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[62] Moreover, in arriving at his conception of physical matter, Aristotle makes use of the concept of a subject or "underlier" (ὑποκείμενον) which belongs as much to logic or metaphysics as it does to physics. Matter is a potentiality that underlies something without independently being something in its own right. Understood, as such, it makes as much sense to apply the term "matter" to kind that underlies contrary differences (1016a24) as it does to apply it to a nature which underlies contrary forms. Rorty dismisses this as a "vague and diffuse sense of matter as ὑποκείμενον for contraries, which is harmless enough" (1974 75), but, this sense cuts to the very heart of what it is to be matter—even what it is to be the matter out of which a plant or animal develops. (Pellegrin [1987 322 n.12] makes a similar criticism of Rorty's position.)

[63] Aristotle discusses the sort of unity that we're now contemplating in Metaphysics Δ.6:

> In yet another way, [something] is called one from its subject's being undifferentiated in form; the undifferentiated is that the form of which is indivisible with respect to perception, and the subject is either the first or the last relative to the end—for wine is called one and water too is one, in that they are indivisible with respect to form, and all the juices (e.g., oil and wine) and the soluble things are called one, since the ultimate subject is the same—for all these things are water or air. (1016a17-23)

Aristotle does not here call this form of unity unity-in-kind. Quite the opposite, when he goes on to discuss the unity of things "whose kind is one being differentiated by contrary differences", he says that they are said to be unities "in nearly the same way, indeed, as things whose matter is one" (1016a28). It follows that there are two related but distinct varieties of unity. Nevertheless, there are other passages that give credence to the identification of kind with physical matter so it is worth considering this possibility further.

[64] Interestingly Aristotle does seem to countenance single answers to such pairs of questions in some cases. He tells us that "voice [φωνὴ] is the kind and matter and the differences make from this the forms of voice and the phonemes [or "elements", στοιχεῖα]" (Z.12 1038a5-9). (His use of "rounded bronze" as a hypothetical definition in the H.6 1045a22-30, quoted above, might be taken as another example, but it should not be. "Rounded bronze" is not offered as an actual definition of anything. Aristotle's point is that if "rounded bronze" were a definition, we would have no trouble understanding its unity (and the unity of its definiendum), because we understand the way in which matter and its form are one. Since a kind and its differences enjoy the same sort of unity, we should not be puzzled

view would need to be that sameness-in-kind is the relation that holds between things whose physical matter is of the same form. This is Rorty's own position and versions of it have been maintained by Balme, A.C. Lloyd, and Furth.[65] Rorty puts the view as follows:

> …Aristotle is now thinking of the genus {of man} as referring to the kind[66] of matter—animalish goo, so to speak—which is suitable for making men out of (and also suitable for making horses out of), and thus is thinking that besides the vague analogy between form and matter based on their common role as ὑποκείμενα there is the literal truth that the genus-term denotes the *kind* of proximate material cause out of which the individuals of the species can be formed. (1974 72, cf. 1973, especially 409-416)[67]

In fact, however, Aristotle does not think that men or anything else are made out of "animalish goo". The proximate material out of which animals are generated is the menses

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over the unity of a definition.) However, it is bizarre to think that the two questions should yield the same answer in all cases, and Aristotle shows no sign of thinking this. He always gives man's kind as animal and never as flesh or seed. In fact, one would not need to hold that the two questions should have the same answer to identify kind and physical matter. One could distinguish, as we did earlier, between kind-*qua*-group and kind-*qua*-characteristic. The answer to the question "What kind is this?" would then be the name of the kind as a group, but the characteristic that would qualify something as a member of that group would be being made of a certain matter.

[65] Balme's clearest statement of this position (to my knowledge) is in an excerpt of a letter which was published by Grene as the final end note to her 1974:

> Therefore the definition of a genus cannot be a list of determinations (as a species is) but a list of alternative possibilities which can be more or less vague and far-reaching according to the taxonomic level at which you put the genus… The proximate matter of bird is stuff capable of these differences; it may be stuff merely capable of developing wings rather than forelegs, or it may be worked up to a point where it is capable of long or short wings, but not this that or the other—i.e., it is nearer the specific definition. {…} the definition of genos at each level of greater or less precision will be the same as the definition of the proximate matter at corresponding levels.

Lloyd (1962 86-8) maintained that a hierarchy of kinds represents a succession of physical changes. Thus bald eagle would be a form of the kind, eagle which is a form of the kind, bird which is a form of the kind animal, because in the generation of a bald eagle some generic animal matter would first acquire the generic bird form, and then the generic eagle form before finally acquiring the specific bald eagle form. Furth (1988 §14) advocates the same view, and cites *Generation of Animals* 736b2-3 in support of it. It reads: "For an animal does not become at the same time an animal and a man or a horse, and likewise with the other animals; for the end comes to be last and the peculiar is the end of the generation of each thing". This is suggestive, but it does not say that embryological development neatly recapitulates a taxonomic structure.

[66] Rorty uses "genus" rather than "kind" to translate "γενός", and uses "kind" as I've been using "sort" and "type". The "kind" of matter of which he speaks would have to be an εἶδος (rather than a γενός) if his position is to avoid circularity.

[67] Rorty continues:

> I am tempted to take this latter step because I think that the passages in which Aristotle wants to say that most so-called substances are not really substances, but only potencies have to be given a firmer and more literal sense than they are usually given, and that to do so we must see Aristotle as trying (inconsistently with much else in his thought) to see the sensible world as blocked out into two quite different sorts of things—full-fledged substances and ἀόριστον goo.

But one needn't consign such non-substances as puddles, artifacts, hands, or mules to the status of indefinite goo to take full account of Aristotle's claim that they are not really substances. These things lack the unity, stability, and organization characteristic of substances, but insofar as they exist there is nothing indefinite about them.

contributed by the female, and there is reason to think that each form of animal is generated from a distinct menses. Certainly very different forms of animals—e.g., men and bees—must have different matter: human menses is a sort of concocted blood, whereas bees lack blood altogether, so it is hard to see how there can be any stage in the generation of a bee where what is developing could come to be a man rather than a bee, and the doctrine of kind as matter ought to apply in this case every bit as much as in the case of man and horse (where it is somewhat more plausible that there is any stage at which the developing offspring could go either way).

(The menses of more similar animals must be more similar, so it is not implausible that all the animals belonging to a narrowest kind above the uncuttable forms [say all horses and donkeys] should have menses that is the same in form. Indeed the sameness of the menses might be used to explain the ability of such animals to produce offspring. Starting from this conjecture, one might go on to reason that the members of the next kind up would have menses that differ in form but derive from a single proximate matter, and so on, with each higher level in a taxonomy of animals corresponding to a more remote material cause.[68] However, this position is not tenable for a number of reasons. First the proximate matter of menses seems to be blood, and there's no reason to think that this is any less form-specific than the menses is, and [to return to a difficulty alluded to earlier] it is not clear that Aristotle thinks that blooded and bloodless animals share any materials that are not shared by non-living things. Second, I know of no evidence that Aristotle thinks that, even in the cases like that of the horse and donkey, the menses are one in form.[69] Indeed, there is evidence to the contrary. If they were the same in form, then, given Aristotle's theory of generation, we'd expect the offspring to be the same in form as the father, whereas, in fact, he thinks it resembles both parents without being the same in form with either. For example, in *Metaphysics* Z.8, we're told that mules are neither horses nor donkeys but belong to the "next kind" above these two [1033b33-4].[70])[71]

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[68] Balme and A.C. Loyd (see n. 65) could perhaps be read as holding this view, but it is more natural to take them as agreeing with Rorty (though for quite different reasons).

[69] According to *Generation of Animals* II.7 it is possible for a pair of different animals of different forms to produce offspring if they have similar natures and forms and if their size and gestation period is similar (746a30-b11).

[70] Rorty (1973 413-4) takes this to imply that a given mule is not an οὐσία because it is somehow indeterminate—since it belongs to the kind common to horse and donkey but not to either form. But he points to no evidence that Aristotle regards mules as indeterminate, nor is there any such evidence to point to. The natural way to read the passage is that mule is simply another (fully determinate) form of the kind to which horse and donkey belong. This is confirmed by *History of Animals* I.6 490b34-a2 which identifies the kind as λοφοῦρος and tells us that Syrian half-asses are not ἁπλῶς τὸ αὐτὸ εἶδος as mules, implying that mules are a form (cf. 577b24 and 580b1 where mule is described as a kind). (On the genuineness of this passage see Balme's [forthcoming] commentary.) Aristotle has a

Whatever plausibility the identification of kind with physical matter may have for zoological kinds, and, more generally, for the kinds of composite οὐσίαι, it makes no sense when applied to things in other categories. For example, gift is a form of the kind transfer and jeering a form of the kind insolence.[72] If these actions can be said to have matter, that matter will presumably be the agents and patients. But these agents can perform actions of different kinds on these same patients. A person who is able to give a book as a gift, for example, could instead do a variety of other things with it, not all of which will be transfers. He can read the book or use it to prop up an uneven piece of furniture. Also, consider the kind virtue, of which justice and bravery are forms.[73] There is no virtuous stuff in the human soul that can be worked up differently so as to become one virtue or another. If a virtue has matter, that matter is a capacity of the non-rational part of the soul to feel certain emotions to a greater or lesser degree. The matter of bravery, for example, would be the capacity to feel fear in the face of a fine death, since it is by having this capacity that one is able to be either brave or cowardly. But, if so, bravery's kind would be not virtue but state-concerned-with-fear.

As soon as we step beyond the category of οὐσία, we stop being able to make sense of the idea that the matter out of which something is made is somehow its kind. Since beings in the other categories are not supposed to be definable in the strict sense that οὐσίαι are, they might not fall into kinds in the strictest sense, but they are supposed to be definable in some analogous sense, and Aristotle often defines non-οὐσίαι by giving their kinds and differences.[74] We should expect him to want to assimilate these kinds to matter just as he assimilates οὐσία-kinds to matter, because the unity of definition problem will arise in these cases as well.

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relatively extended discussion of mule sterility in *Generation of Animals* II.8, and it contains nothing that would make us think that mules are somehow indefinite. Quite the contrary. The only defective feature of mules that Aristotle mentions is their sterility. Since reproduction is a central feature of life this might be taken to diminish a mule's claim to be an οὐσία, but in fact Aristotle argues that is not *per se* a result of the mule's being produced from two different forms, since there are other such crosses which are fertile. Mules' sterility is a result of the near-sterility of horses and donkeys being exacerbated by the cross. On Rorty's reasoning any cross would have to be indefinite, since it too would belong to the kind common to both parents without belonging to either. But there is no sense to talk of any animal being indefinite, nor is there any reason to deny that the results of crosses are οὐσίαι. Matter is indefinite in that it can be any of a number of contrary things, and, taken in its own right, is not any one of these things as opposed to another. But there's nothing a mule can be other than a mule, and taken in its own right it *is* a mule.

[71] For further objections to the identification of animal kinds with physical matter, see Grene 1974.

[72] *Topics* IV.4 125a17ff, VI.6 124a6.

[73] See *Topics* VI.6 127b19-25 on justice as a form of virtue.

[74] See *Metaphysics* Z.4 on the way in which non-οὐσίαι do and do not have definitions and H.2, where we find definitions for a number of clear non-οὐσίαι.

For example, someone might whistle while he's giving a book to a friend, but accidental unity of whistling and giving ought not to be a definable action. Worse, a person might wax wroth over the seizure of his concubine and withdraw from battle resulting in the death of his beloved friend, his vengeful slaying of an enemy warrior, and his own demise. If this accidental unity constitutes a single, definable action, then the *Iliad* will be a definition, and this is Aristotle's paradigm case of a λόγος that lacks the sort of unity necessary for a definition:

> A definition is one account not by conjunction (συνδέσμῳ) like the *Iliad*, but rather by being of one thing. (*Metaphysics* H.6 1045a12-14)[75]

The only suitable form of unity in Aristotle's repertoire is the kind-form relationship that Aristotle expresses by assimilating kind to matter. Therefore, this relationship must apply across the categories, even if definition in the strictest sense is reserved for οὐσίαι. Besides, metaphysics is not just the study of οὐσία but of being *qua* being, of which οὐσία is the primary and focal case, therefore we should expect Aristotle's key metaphysical conclusions about οὐσία to apply to the other categories as well, though in some derivative or analogous manner.[76]

Thus we must reject the interpretation on which a thing's kind is its physical matter. There is no positive evidence for it and it does not fit the full range of cases in which Aristotle needs to assimilate kind to matter in order to solve the unity of definition problem. When Aristotle says that the kind is matter, he using the term in a broad sense that extends beyond physical matter. The need for such a concept is attested to by the fact that still, over two millennia after Aristotle's death, logicians feel pressed to coin terms like "determinable", which are no less bold than Aristotle's talk of matter, in order to capture the very relationship that Aristotle intended.[77]

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[75] Cf. *Posterior Analytics* II.10 93b35-7: "A λόγος is one in {either of} two ways: either by conjunction (συνδέσμῳ) as the Iliad is, or by revealing one thing non-incidentally".

[76] It should be kept in mind that Aristotle does not hesitate to speak of the οὐσιαι of things like motions (*Physics* V.4 228b13), numbers (*Posterior Analytics* II.13 96a34), and tragedy (*Poetics* 6 1449b24), and, as Balme (1987c 297 n.37) observes, Aristotle talks of the essence of non-οὐσιαι at 1030a29, 1031a27, 649b22, and 429b17.

[77] Johnson (1921 174), for example, speaks of determinates as "emanating" from determinables.

2.3.2 Kinds as intelligible matter

I mentioned intelligible matter at the beginning of §2.3.1 as an indication that Aristotle's conception of matter is not exhausted by physical matter. Aristotle uses the phrase three times, including once in *Metaphysics* H.6, shortly after he identifies kind and matter:

> Of matter, on the one hand there is the intelligible and on the other the perceptible. And always of the account, there is on the one hand the matter and on the other the actuality—e.g., the circle is plane figure. (1045a33-5)

This passage is most often understood to identify something's kind and its intelligible matter.[78] On this reading, the circle's intelligible matter and kind is "plane figure", and Aristotle neglects to specify its actuality or difference. Similarly, we can take man and horse to have intelligible matter (in addition to their perceptible matter) and identify this with the kind animal. The point of referring to the kind as intelligible matter would be to make it clear that, like perceptible matter, the kind is not some determinate thing distinct from its forms, but rather something indeterminate that can be determined in different ways to yield the forms. Just as water can be formed into wine and wine de-formed back into water,[79] animal can somehow be specified into man or horse and man or horse can be de-specified into animal. We will turn to the question of what exactly it would be to specify or de-specify animal later, after first considering an alternative reading of the H.6 passage, based on a different understanding of "intelligible matter".

Aristotle's other two uses of the phrase occur in Z.10-11 during a discussion of whether a thing's parts are parts of its essence. There are certain cases in which they are not, he concludes. For example a man's hand is a part of him but no part of his being a man—quite the reverse since the definition of hand will make reference to man. Similarly a semi-circle is a part of a circle but not part of its being a circle—indeed, again, semi-circle will be defined in terms of circle, rather than the reverse.[80] Aristotle refers to these sorts of parts as "parts of the matter" a description that applies straightforwardly in the case of the man whose hand is a part of his body and would apply straightforwardly to a brazen circle, since the bronze can be divided to yield

[78] Scholars who read the passage this way include Ross (1924b 199-200, 238) and Grene (1974 65-66).
[79] Cf. *Metaphysics* H.5 1044b32-a6.
[80] 1035b3-1036a11.

two semi-circles. However mathematical objects (even particular ones) are abstracted from matter and therefore cannot have material parts. The mathematician would be interested not in the particular round piece of bronze, but the circle into which it is formed, a part of this circle could not be a portion of the bronze. The notion of intelligible matter is introduced in this context to name that in virtue of which the mathematical circle is divisible. One can think of it as something like the region encompassed by the circle. We can call Z's intelligible matter "constituent intelligible matter" and group it together with physical ("perceptible") matter under the general label "constituent matter".

If we took H.6's "intelligible matter" to be constituent matter, we would have to see "plane figure" as either the constituent matter of circle or else as a formula giving both the constituent matter and the actuality. The second option is more natural. We can take the plane as the intelligible-constituent-matter and "figure" as standing in for a specification of the shape which is the actuality of a circle.[81] If we take the "plane figure" example in this way, then the passage gives us no reason to suppose that man also has intelligible matter; rather it suggests the equation of man's kind with his physical ("perceptual") matter. Thus the example is made to cohere with Rorty's understanding of the assimilation of kind to matter, and, indeed, this is how Rorty takes the example.[82]

Several of the arguments advanced in §2.3.1 against the view that Aristotle identified kinds with physical matter generalize into arguments against understanding kinds as constituent matter and so speak against this reading of "intelligible matter" in H.6. [83] The assimilation in H.6 is a means of solving the unity of definition problem, and, given the range of cases in which this problems arises, it could not be solved by identifying kind with constituent matter. Neither, however, is it likely that the phrase "intelligible matter" would be used in entirely independent senses in Z and H. The passages should be read, if possible, in a way that gives the phrase a single sense, while enabling it to refer to constituent matter in Z and determinable kinds in H.

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[81] This reading garners support from *Metaphysics* 1024a36ff, where we're told that, on one sense of kind, plane is the kind of the plane figures.
[82] 1974 76; cf. Bostock 1994 284-5.
[83] As an extension of this point, Rorty's reading of "intelligible matter" in H.6, makes it unintelligible how there can be kinds of shapes. The kind of all shapes would be plane, because that would be their matter. But there'd be no basis for a kind, "triangle", subsuming isosceles and scalene, for there's nothing that could constitute in this way all and only triangles.

This is not difficult, since matter is a relative term. Something is matter in relation to something else which it has the potential to be, and perhaps relative to some way in which in which it has the potential to become it—as e.g. bronze is matter relative to a *sculpture* into which it can be *sculpted*. In Z, the semicircles are material parts of the circle insofar as they can be spatially combined to form it, and a circle has matter insofar as it is subject to division into parts of this kind. The matter is perceptual if the division in question is into perceptually distinct objects as in the case of cutting a brazen circle in half, and the matter is intelligible if the division in question is of a sort that can be performed only in thought to yield different thinkable components.

In H.6, where there is no issue of dividing things up into material constituents the distinction between perceptible and intelligible matter must be applied in light of the relations and operations that are under discussion—namely how a differentia applies to genus to yield a unitary definition and how a predicate applies to a subject to yield a unitary proposition. In both cases we have something indeterminate becoming determinate, as in the case of a lump of bronze of indeterminate shape being shaped into a statue. But unlike in the case of the bronze, there is no change leading to a new perceptible object. Rather the indeterminate matter (the subject without its predicate or the genus without its differentia) is an object only of thought, and the operation by which it is made determinate occurs only in thought. Thus the matter is intelligible rather than perceptual in just the respect that it is in Z.10-11, even though it is not constituent matter.

The upshot of the preceding is that kinds are matter relative to their ability to be specified into forms by the process of division. The matter is intelligible in that the process is an inherently intellectual one, and the matter is matter in that there is a sense in which, through the process, new objects of thought come to be. In this connection, consider the following passage, which comes shortly after a portion of I.8 that we looked at in §2.2.2:

> This, then, is the meaning of calling things other in form—that they are contrary, being in the same kind and being indivisible (and those things are the same in form, which have no contrariety, being indivisible); for in the process of division contrarieties come to be even in the intermediate stages before we come to the indivisibles. Evidently, therefore, with reference to that which is called the kind none of the forms which belong to the kind is either the same as or other than it in form (rightly so, for the matter is indicated by negation, and the kind is the matter of that of which it is called the kind, not as in {the kind} of the Heraclidae, but as the {kind} in nature), nor is it so with reference to things which are not in the

> same kind, but it will differ in kind from them and in form from things in the same kind. For the difference between things which differ in form must be a contrariety; and this belongs only to things in the same kind. (*Metaphysics* I.8 1058a16-28)

Here we see kinds treated as matter in connection with a discussion of division from which differences and forms are said to come to be, and we see the emphasis on contrariety that we met in our initial discussion of kinds as determinables. The kind is matter precisely in that it is indeterminate able to be divided in thought into contrary determinate forms.

2.3.3 The ontological status of intelligible matter

The kind is intelligible matter from which forms are generated by division, but, someone might ask, what is this matter itself and in what manner does it exist? In particular, is it a mind-independent object? If so, then it is seemingly the same object in each of its differing forms and so kinds are immanent universals after all.

Physical matter is, of course, mind-independent, and the analogy between kinds and it does suggest that there is some same thing *in* each form of a kind, which accounts for the possibility of that form or one of its contraries being arrived at by a division. As noted earlier, this Moderate Realist model is strongly implied by much of Aristotle's language. However we have also seen numerous passages in which Aristotle resists the Moderate Realist construal, and it is difficult to make sense of the idea of mind-independent intelligible matter existing in objects.

Matter, after all, is that which is capable of becoming something and into which that thing can pass away, and there is no bird-as-such into which an eagle can pass away and from which a sparrow can come to be—except, that is, in thought. As we will see in the next chapter, one can decompose a thought of an eagle into a thought of a bird; and, from this thought, one can compose a thought of a sparrow. This ability of an object to be manipulated in thought in this way is mind-dependent at least in the sense that it is a potentiality relative to thought. Nevertheless Aristotle does seem to think that there is something about forms which enables some and not others to be decomposed into kinds. At the very least he councils us against trying to think in terms of such pseudo-kinds as the *Sophist*'s "swimmers", and he thinks that cloak

defined as "man and horse" doesn't have the unity needed to qualify as a term. There is then some basis in the forms that makes it possible or proper for us to subsume them under kinds, and perhaps this should be identified with the intelligible matter.

To get clearer on the ontological status of this intelligible matter, we need to ask what precisely it is about the objects that underwrites our grouping them into kinds; this amounts to the question "What is sameness in kind?" One possible answer is that it is a basic, unanalysable relation. On this view, the kind would in a fairly strong sense exist independently of the mind (though not as a universal element in the forms),[84] and talk of intelligible matter would tell us nothing about the kind as such, only about its role in thought.

However, in §2.2, we have already seen what is plausibly a (partial) analysis of sameness-in-kind. It consists in, or at least requires, the relationship commensurability or difference in the more and the less, which is epitomized by contraries. (This already suggests a significant role for the idea of intelligible matter, insofar as this same relationship is a necessary condition for change and thus has an obvious connection to physical matter.) In §2.4.2, we will encounter a further ontological relation that is necessary for there to be a kind, and, in §2.4.4, I will suggest how sameness-in-kind can be analyzed into commensurability and this other relation. In Chapters 3-4, we will see how these relations form a basis for certain psychological and epistemological actions, and so constitute a real basis for concepts without serving as proper objects for them. Understanding these actions will also give us a purchase on the respects in which Aristotle does and does not think that thoughts have universal objects and on why he so often uses language that lends itself to a Moderate Realist construal.

We have now seen reason to think that this construal should be rejected—that Aristotelian kinds cannot be imminent universals. If they cannot, then neither can focal, analogous or successive unities, because these forms of unity are weaker than and derivative on sameness-in-kind. Aristotle could still hold that uncuttable forms are immanent universals, but since these represent such a small sub-set of concepts, I don't think this position would constitute Moderate Realism, at least not without significant qualification, because the sort of unity enjoyed by forms and lacked by kinds will not be needed as the basis for a concept.

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[84] This is, in essence, the position defended by Creswell (1975).

2.4 ARE ARISTOTELIAN FORMS PARTICULARS?

There are reasons to doubt that Aristotle regarded even uncuttable forms as immanent universals. Since the 1950's, a growing contingent of scholars have been arguing that each member of a species possesses its own particular form. If they are right, it seems to follow that Aristotle cannot be a Moderate Realist about forms. I say "seems to follow" because, according to the most prominent "particular forms" interpretation, Aristotelian forms are universals in the sense in which I've been using that term. The literature on the universality or particularity of Aristotelian forms is expansive. I will touch on this literature here, but I cannot do justice to it and will not try to. My goal will be, rather, to present the interpretation that I think is most plausible, distinguishing it from alternative interpretations and commenting on its evidential status and implications for Aristotle's view of concepts. The presentation and defense of this interpretation will raise a number issues that will come to the fore in subsequent chapters in my positive account of Aristotle's view of concepts.

The contemporary discussion of the possibility that forms are particular began with a pair of papers by Sellars and Albritton, respectively, published in 1957. During the course of a more general discussion of the *Metaphysics*, Sellars made the following remark:

> Certainly the form of a materiate substance is not a *universal*, for, as Aristotle reiterates, the form is "the substance of" the composite, and the substance of a *this* must be of the nature of a *this* and never a universal.[85]

Picking up on this suggestion, Albritton devoted his paper to an assessment of the textual support for "particular forms" in the *Metaphysics*. Because "what Aristotle calls 'the form' of a particular thing is sometimes certainly the universal form of its species (e.g., at 1034a5-8)," Albritton proposed and defended a more conservative reformulation of Sellars' initial remark:

> A particular material substance not only shares with others of its species a universal form, but has a particular form of its own, an instance of that universal form, which is not the form of any other thing.[86]

In addition to Sellars' point that the argument of Z requires that the forms be particular since they are οὐσίαι, Albritton finds two other reasons to attribute the belief in particular forms

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[85] Sellars 1957 691.
[86] Albritton 1957 700.

to Aristotle: (1) "the explicit testimony of Λ to a general theory of particular forms"—especially at Λ.5 1071a27-29 where Aristotle distinguishes between "your matter and form and moving cause and mine", which "are the same in their universal formula"—and (2) "very nearly explicit attributions of particular forms to animate substances in Z, H, and more tentatively M".[87]

It is worth noticing that Albritton's version of the particular-forms thesis does not pose any threat to the idea of Aristotelian forms as immanent universals, because Albritton's Aristotle believes in particular forms in addition to, not instead of, universal forms. Later proponents of particular-forms have dispensed with this two form approach. Frede is representative:

> things of the same kind have the same form only in the sense that for things of the same kind the specification of their form is exactly the same... It is a basic non-trivial fact about the world that things come with forms which are exactly alike, and not just sufficiently similar to class them together in one kind. The reality of kinds amounts to no more than this, that the specification of the form of particular objects turns out to be the same for a variety of objects. But for this to be true there is no need for a universal form or a universal kind, either a species or a genus. And in fact the import of Z13 seems to be that there are no substantial genera or species in the ontology of the *Metaphysics*.[88]

For Frede's Aristotle, a given man has only one form, and it is numerically distinct from the forms possessed by other men. However, each man's form is qualitatively identical to ("exactly alike") the form of every other man. Frede is not alone in this position, it is shared by Witt, Tweedale, and A.C. Lloyd amongst others.[89]

"Fredeian forms", as we might call them, are qualitatively identical elements or characteristics shared by the differing members of a species.[90] As such, they can serve as the

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[87] Albritton 1975 707.

[88] Frede 1985 23. Frede uses "kind" here not as a translation of γένος, but in a wider sense, which would embrace εἴδη as well as γένη.

[89] See: Tweedale (1988 520)—"each individual form taken in itself is indistinguishable from every other individual form of the species on question"; Witt (1989 179)—"{Socrates and Callias'} individual forms have the same features, and so differences between them must be explained by their matter"; and A.C. Lloyd (1981 2)—"In my view neither the form of pale possessed by an individual man Socrates nor the form of man with which... Socrates is in some sense identical is a universal, for neither is one and the same, that is numerically the same, form as either of those possessed by or identical with any other pale man". (Note that Lloyd 1981 is a significant departure from Lloyd 1970.)

[90] One might object to characterizing a form (Fredean or otherwise) as a "characteristic" or even as an "element" on the grounds that something's form is its οὐσία, and therefore is the thing itself rather than a part of feature of it. Though there is some justice in this objection and one must take care in applying terms like "element" or "characteristic" to forms, I do think these terms are apt, if construed broadly enough. While in an important sense Socrates is his form, he is not *only* his form. Certainly, on Frede's view, Socrates must be more than his form

proper objects of concepts. Thus they qualify as universals, as I've been using that term. Frede and others think of these forms as particulars because they are numerically distinct; but, as I argued in §1.3.3, there is no need for an immanent universal to be numerically identical across its instances, and, as we saw in §1.3.4, my paradigm Moderate Realists, the Neo-Scholastics of the Louvaine school, did not suppose that their immanent universals were numerical unities.

These same neo-Scholastics and their descendants are among the traditional interpreters of Aristotle in contrast to whom the proponents of particular forms define their positions.[91] Other

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because Socrates is wise and snub-nosed whereas his form cannot be either of these things since it is exactly alike Alcibiades' form and Alcibiades is neither wise nor snub-nosed. The identity between Socrates and his form is incomplete, and the form can be seen as a characteristic of the compound at least in the sense that, in stating the form, one gives a partial but not complete characterization of the compound. This is so even though the relationship between Socrates and his form is quite different (and more intimate) than the relationship between Socrates and his attributes—even though the form is what Socrates *is* while the attributes are merely things he *has*.

[91] When DeWulf, in the passage that stands at the head of this chapter, described Moderate Realism as "one of the finest pronouncements of Peripateticism", he had in mind the doctrine to which he himself subscribed (DeWulf 1909a) according to which the universal immanent in a species-member is not a universal *in itself* but only insofar as it is identical to a something that exists in every other species-member and is consequently capable of being isolated by the mind and considered in a certain manner. This interpretation of universal Aristotelian forms is held almost unanimously (though not exclusively) by Thomist historians of philosophy, so let us call it the "Thomistic Interpretation". We find it espoused for example by Copleston in his 1946 *History of Philosophy,* and by Joseph Owens in his 1951, *The Doctrine of Being*:

> The universal is real, it has reality not only in the mind but also in the things, though the existence in the thing does not entail that formal universality that it has in the mind. Individuals belonging to the same species... do not partake in an objective universal that is numerically the same in all members of the class. The specific essence is numerically different in each individual of the class, but, on the other hand, it is specifically the same in all the individuals of the class (i.e., they are all alike in species), and this objective similarity is the real foundation for the abstract universal, which has numerical identity in the mind and can be predicated of all the members of the class indifferently. (Copleston V1. 301)
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> Apparently, though itself neither singular nor universal, ["the form of a sensible entity <οὐσία>"] is the cause of both individuality in the singular thing and universality in the definition. (Owens 1951 233)
>
> The form as seen in this thing is not universal. It is *this* definite form. That same form, however, is seen in other singular things, indefinitely numerous. Yet the knowledge of the form as seen in the one definite instance in a singular, is *able* to be applied indefinitely to all things in which that form happens to be found...
>
> ...the same definite form is found indefinitely multiplied in singulars. Matter and indefiniteness are therefore the explanation of universality both from the side of things and in knowledge. The actual knowledge and knowing are definite and a 'this'. But though actually definite in one singular thing, the form—as form—could just as well have been that of any other singular of the same species. Its possibility, as a form, of being the form of such other individuals, is indefinite. (Owens 195 1273, cf. 1981c.)

It is present also in Green, who is clearly following Owens, and whom Witt (1989 2 n. 3) cites as an exponent of the "standard interpretation" :

> A thing's nature is its form... Moreover, its form is its own form, as this frog or this octopus. There is no 'frog' or 'octopus' as such. Yet it is the form of this individual which we, as knowers, universalize, so that we understand not this particular specimen, which we perceive and do not

early 20th Century interpreters who claimed that forms were universals differed from the Scholastics on many counts, but most of them did not differ in their understanding of what it would mean for forms to be universal or particular.[92] Frede et al. differ from the pre-1957

> wholly know, but the universal inherent in the particular, the potential universal which in our minds we actualize. What we know is the specific form, *a* frog, *an* octopus, what it is to be a frog, what it is to be an octopus. (Grene 1967 55)

The Thomistic interpretation can be found in Windelband (1899 257-8), and its popularity is further attested by Alan Donagan who references Owens (and Veatch [1952 105-115]) when he writes (in 1963) that "the most familiar form of 'moderate' realism is that commonly ascribed to Aristotle"; he characterizes it as follows:

> an essence exists in two distinct ways: *in rerum natura* as a many, and in the mind as a one. The universal term "man" stands for the essence *man* as it exists in the mind abstractly. The essence itself, being neutral with respect to universality and particularity, can exist *in rerum natura* as individuated in Socrates, Plato and other men. (Donagan 1971 108.)

The dominance in 20th Century metaphysics of the ontological taxonomic conception of universality caused this interpretation to seem unintelligible and so to recede out of scholarly consciousness as the literature stemming from Sellars and Albritton's 1957 papers developed. Albritton himself dismisses the interpretation with a note: "I doubt that Aristotle would have understood any better than I do the suggestion that a thing may be neither universal nor particular" (1957 699 n.2). Thirty years later the view was so far forgotten that Guthrie (1981 213 n.2) could refer to "Owens's subtle conclusion that form is neither singular nor universal," as though Owens' interpretation was novel. This scholarly amnesia accounts for the hazy generality that attends most recent references to the "traditional" or "standard" interpretation of Aristotle on this issue.

[92] By in large, these scholars saw Aristotle's position as inconsistent. For example Zeller writes that a form is "always a universal in comparison to that which is a compound of form and matter" and thinks that this view, when combined with Aristotle's other metaphysical and epistemological positions, generates a contradiction, the results of which "can be observed throughout the whole Aristotelian system" (1951 174, cf. 1897a 204 and 334). Ross, though more sympathetic than Zeller, also finds inconsistencies. When Aristotle speaks of "universals" and "common things," Ross takes him to refer to things that are common (or universal) to different uncuttable forms, thus Ross thinks that Aristotle regards "the genera next above the *infimae species*" as "the narrowest universals" (1924a cxi). However, Ross thinks that *Metaphysics* Z.13's argument against any universal being an οὐσία applies to the uncuttable forms as well:

> ...the logic of the this chapter should have led {Aristotle} to conclude that only the individual, or the immaterial element in the individual, is substance, and it is only the doctrine of *infimae species* that prevents him from drawing this conclusion. (ibid cxv).

Here "individual" renders καθ' ἕκαστον, so the "immaterial element in the individual" would be the form of, e.g., a particular man, and Ross is here saying that Aristotle should regard this as a substance. For Aristotle to think this, he would have to think that each man has his own particular form. But, according to Ross, Aristotle does not think this; rather, he "usually... represents the form of each *infima species* as being identical in every member of the species" (1995 175, cf. 192 n.63. and 1923a cxvii, where he notes some exceptions). Thus Ross thinks that if Aristotle were to attribute particular forms to particular men, he would mean that each man had a form that was not identical—not even qualitatively identical—with that of his neighbor. That this is Ross' understanding is clear from the following passage:

> ...whereas things in different species differ in form (as well as in matter), things in the same species differ in matter only. The dominating idea is that of the *infima species*, the notion that there are fixed combinations of characteristics which form the core of the individuals in which they are present; these alone nature seeks to secure and to perpetuate. All differences of less importance and permanence than these are deemed unworthy of the name of form and are treated as the result of the union of identical form with different matter. ...if two parcels of flesh and bone with which the form [of man] unites are qualitatively alike, they are no more capable of producing two distinguishable men then if they had been prime matter. They must differ in character, i.e. in form. Socrates and Callias must therefore, while agreeing in their specific form, differ in the

tradition, not in having a new view of forms, but in pairing the traditional interpretation with the ontological taxonomic conception of universality, so as to yield new resolutions to some seemingly contradictory passages in the *Metaphysics*. If I am right, however, that this conception of universality was not Aristotle's, these resolutions fail and the passages pointed to by Sellars and Albritton constitute some evidence that forms are particular, in the sense of the term that I endorse. However, the evidence is far from decisive, because it remains possible to interpret these passages in any of the ways that the pre-1957 commentators did.

The case for particular forms is strengthened considerably when we look beyond the *Metaphysics*. As Balme, Lennox, and Cooper have argued, the theory of animal reproduction expounded in *the Generation of Animals* requires that the form of a given animal be qualitatively distinct from the forms of other members of its species. I take up this case in the following sections. In §2.3.1, I lay out the view of Aristotelian form found by Balme and Lennox in the zoological works, especially *Generation of Animals*; in §2.3.2, I defend this view as an interpretation of that treatise; and in §2.3.3, I show that it has the resources to meet the strongest objections to the view that forms are (in any sense) particulars.

> quality or form of their matter. Now this difference in the quality of their matter may be reckoned to the side of form or essence, and if this is done we get the notion of an essence of the individual which includes besides the specific form such further preeminent characteristics as spring from differences in the matter with which the specific form is in different individuals united. (1923a cxviii)

Ross does not think that Aristotle held that there were such particular forms, at least not consistently, though he notes Metaphysics Λ 1071a27-29 as an occasion on which Aristotle may have unselfconsciously slipped into this position (cxix). Nevertheless, Ross thinks that Aristotle should have held that particular species-members have particular forms—forms which, unlike ersatz-particulars, would have to *qualitatively differ* from one species-member to the next. Russell (1945) takes a view similar to Ross'. He writes that "a form is intended by [Aristotle] to be something quite different from a universal, but it has many of the same characteristics," with the result that Aristotle is vulnerable to many of his own criticisms of Platonic forms (166). After quoting Zeller on Aristotle's failure to "emancipate himself from the Plato's tendency to hypostatize ideas," Russell considers what defense Aristotle, might take against this criticism:

> The only answer that I can imagine would be one that maintained that no two things could have the *same* form. If a man makes two brass spheres (we should have to say), each has its own special sphericity, which is substantial and particular, an instance of the universal "sphericity" but not identical with it. (166-7)

However, Russell thinks that this "answer" would be incompatible with a number of Aristotelian doctrines, and he does not think that the texts in which Aristotle discusses forms can be plausibly read as endorsements of this position. The particular forms that Russell imagines Aristotle desperately turning to might be ersatz-particulars, and Russell might understand the universality of Aristotle's forms to consist in something more than qualitative identity, but he does not say enough to make it clear. Several other historians from the same period are equally ambiguous on the point or find ambiguity in Aristotle. See Fuller 1945 176, Jones (1952 506, cf. 183-5, 201-202, 423), and Stocks (1925 36-7).

2.4.1 Balme's embryological argument for particular forms

Balme (1987c) was the first to argue for particular forms on the basis of the *Generation of Animals.* In essence his argument is quite simple: On Aristotle's view, a father's contribution to his offspring is a set of movements that carries his form and is conveyed to the offspring through the semen.[93] All the matter is supplied by the mother, who also has a secondary influence on the offspring's form insofar as her own movements are present in the matter she supplies. Since the father contributes only form and no matter, any characteristics inherited from father to child must be due to the father's form. Since Aristotle recognized that a child can inherit characteristics that distinguish his father from other men,[94] Aristotle must have understood these characteristics to be part of the father's form. Therefore, the form which a father passes on to his child must be a particular form unique to him, rather than a universal human form,[95] and indeed, in *Generation of Animals* IV.3, Aristotle speaks of movements that come from the particular fathers insofar as they are the particular men they are. Cooper, who argues along the same lines as Balme, explains their shared conclusion nicely, differentiating it from the view of forms as Fredeian-particulars:

> some have thought from reading just the *Metaphysics* that an Aristotelian form is a non-repeatable instance of some general specific type, differing from other instances not internally… but only by the accidental historical facts about the individual whose form it is by which we mark that individual off from others of the same species. The *GA* makes it clear that, on the contrary, each form… includes… all those distinctive characteristics of structure and organization for which in the individual whose form it is it is directly responsible… Thus Aristotelian forms are particular in that each form contains within itself the basis for its differentiation from (as well, of course, as its affiliation with) other forms of the same specific type. (Cooper 1990 83-4)[96]

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[93] *Generation of Animals* I.22.
[94] *Generation of Animals* IV.3.
[95] It may be that two men have the same form—the case of identical twins comes to mind and Balme thinks that a perfect Aristotelian reproduction would yield a duplicate of the father—but this would not make that form a universal, because the identity would not be what makes the identical men *men*, nor would it make them both instances of any other concept.
[96] Though Cooper does allow that these forms may still be "universals of a much lower order of generality that has been thought" (84). The ellipses in the quoted passage conceal elements of Cooper's view that are in disagreement with Balme. The differences concern two points: first, which characteristics are hereditary and (therefore) part of a man's form, second, how the distinction between essential and accidental characteristics is to be drawn given that members of the same species have different forms. Regarding the first point, Aristotle makes clear at 767b28 that such accidental characteristics as being grammatical or someone's neighbor are not part of anyone's form. The dispute between Balme and Cooper concerns a set of seemingly hereditary characteristics for which Aristotle gives

If the forms of particular men differ from one another, then how are they related to one another, and what does Aristotle mean in saying that the men are the same in form? Balme and Lennox think that men vary from one another in much the same way as the forms of a kind vary from one another. Lennox puts the point as follows:

> To be a form is to be a *determinate realization* of a kind. Socrates is a determinate realization of human nature, as water-fowl is a determinate realization of bird…
>
> Organisms which differ in form can be seen as different progressive determinations of a more general kind. To refer to a parrot and a blue jay as birds is to ignore (i.e., remove from my account) the way in which beak, feather, wing, legs, crop, etc., are differently realized in each. Similarly when I refer to two individual birds as parrots; in doing so I leave out of the account the peculiar ways in which each realizes his parrot features. (1987b 348, Cf. Balme 1987c 296-7)

In short, the members of a form differ from one another in the more-and-the-less.[97] (Or at least, they can do so without this posing any threat to their sameness-in-form; there's nothing to prevent there from being some forms whose members are exactly alike one another.) There are a number of passages that support this view of form-members. *Metaphysics* I.3 gives as one sense

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material-causal explanations in *Generation of Animals* V: eye-color, height, pitch of voice, and a number of traits involving hair or feathers. Balme explicitly includes these characteristics in the form, whereas Cooper argues that Aristotle's material-causal accounts of these features shows that he did not regard them as hereditary or (therefore) as parts of the father's form. The disagreement turns on whether the material-causal accounts allow no role for the father's distinctive form in causing the child's traits. I don't see why this should be the case. Consider the example of eye-color. According to V.1, it is a result of the quantity of liquid in the eye—the more liquid the darker the eye. What is to prevent a father's form from including some characteristic (e.g., a certain shape of the eye cavity) which has as a necessary consequence the accumulation of a lot of liquid in the eyes? (For Balme's own response to this sort of objection see his 1990 51.) Turning now to the second point of disagreement, Cooper identifies the essence/accident distinction with the distinction between characteristics caused by the form and characteristics caused by the matter. Thus, for him, my eye-color is accidental but the shape of my face essential. In this way Cooper maintains a very traditional view of the relations between form and matter on the one hand and essence and accident on the other. The tradition regards form and matter as wholly distinct causal components the former causing the characteristics common to the species, the latter the characteristics distinctive to the individual. Cooper agrees, but includes some distinctive traits with the form because of the differences he recognizes between the forms of members of a single species. Balme cannot take this position because he includes features that are normally considered accidental as part of an organism's form and because he does not think that matter and form have the kind of independence that would be required to draw the essence/accident distinction in the traditional manner. I discuss his view of the essence-accident distinction (and Lennox's development of it) below. Though the two points on which Balme and Cooper disagree are related as we have seen, they are separable. In principle, one could agree with Cooper that eye-color is not inherited while maintaining (with Balme and Lennox) that the inherited traits which distinguish one man from another (such as, perhaps, shape of nose) are accidents. Also, there is a way to hold that seminal motions convey some characteristics which are not parts of the father's form (and which would therefore qualify as accidental on Cooper's view). This last position, constitutes an objection to the argument for individual forms on which Balme and Cooper agree, and I take it up in this connection below.

[97] *History of Animals* IX.1 608a19-b19 discusses the differences between males and females in terms of the more and the less.

of similarity, the relationship between things that, though they "have the same form and are {the sort of} things in which more and the less occurs", "are neither more nor less" (1054b7-9). *Nicomachean Ethics* VIII.1 (1155b11-16) also contains evidence of quantitative difference between the members of a form. There Aristotle counters an argument that, because friendship differs in the more and the less, it must be one in form; he notes that more-and-less differences can also occur between things that differ in form, thus acknowledging that they do occur between the members of a form.[98]

We find quantitative variation between form members also in Topics I.7. After discussing sameness in number, in form, and in kind, Aristotle entertains and rejects another possible variety of sameness:

> It might seem that the manner in which water from the same spring is called {the same} differs from the aforementioned manners {of being the same}; nevertheless it is such as to be in the same group as the things that are called the same somehow in accordance somehow with a single form. For they are kindred (συγγενῆ) and are nearly alike each other. For, every {quantity of} water is said to be the same in form as every {other quantity of water} because it has a certain similarity (τινὰ ὁμοιότητα), and water from the same stream is no different except that it is a more vehement similarity. That's why we don't separate it from the things that are called {the same} somehow in accordance with a single form. (103a14-23)

It is only because water is supposed to be an uncuttable form that the suggestion of a fourth variety of sameness has any plausibility; it is because water is uncuttable that water from a single stream cannot be a form of water as man is a form of animal. Therefore, in this passage Aristotle identifies the sameness of the members of an uncuttable form with a similarity that admits of degrees, such that there can be a more vehement version of the similarity than is required for sameness-in-form.[99]

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[98] This example and the last are cited by Lennox (1987b 354 n. 37).

[99] Read in this way the passage denies that sameness-in-form requires the sharing of any identical characteristics and therefore is a rejection of forms as immanent universals, but there is an alternative reading. *Metaphysics* Δ.9 (1018a15-18) and I.3 (1054b11-13) tell us that things are similar if they have more affections the same than different, and if this is the sense of "similar" being used in the *Topics* passage, it is compatible with forms' being immanent universals. Any two quantities of water would count as the same in form because they share an identical universal form, and two quantities of water from the same spring would also share additional identical features. Still, I don't think this is the most natural way to take the *Topics* passage, especially since (as mentioned above) *Metaphysics* I.3 (1054b7-9) gives us a sense of similarity that is tied to more-and-less difference. If samples of water differ in the quantitative specification of the very traits that make them qualify as water and samples from the same spring are quantitatively alike, then it would be quite natural to describe their sameness as a more vehement form of the relationship that makes all water the same-in-form. Saying this is less natural on the other sense of "similar",

2.4.2 Balme and Lennox on the uncuttability of the uncuttable forms

If the members of an uncuttable form differ from one another quantitatively, as the forms of a kind do, what becomes of the distinction between sameness-in-form and sameness-in-kind? What makes the uncuttable forms uncuttable? Balme and Lennox answer that when one successively divides an animal kind into narrower and narrower forms, one eventually reaches a point after which further determinations of the animals' characteristics become insignificant to their lives and do not figure in or admit of teleological explanations.[100] It is at this point that further specification of differences ceases to reveal the essence of anything and division terminates in an uncuttable form.[101]

To use an example that Lennox develops, forms of bird differ in (amongst other things) the lengths of their legs, the lengths of their necks, and the shapes of their beaks, but these three differences are not independent of one another. It is no accident, for example, that swamp-dwelling birds, which have long legs, have correspondingly long necks and broad beaks. The birds need the long legs to wade through their environment; and, given the length of their legs, they need long necks to reach the ground, where they use their broad beaks to dig food out of the mud.[102] Thus, the several features, along different axes, which distinguish a given form of animal from the others in its kind constitute "a fully coordinate set of structures and activities" suited to its particular life and environment.[103] Contrast this with an individual crane. His neck may be slightly longer than the necks of some members of his form, and slightly shorter than the

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because the similarity of the samples from the same spring would be less intimately connected to the relationship in virtue of which all water is one.

[100] Teleological causation is the relevant form of causation because we are talking here about animals, in which teleology is the dominant sort of causation. In other domains the essence may be determined by some other sort of causality. (On this point, see Balme 1990 50-51.)

[101] Balme 1987c 298 and Lennox 1985 80-81 and 1987b 353-358. Though I treat Balme and Lennox as a unit, they differ in certain respects. Most importantly, Lennox's treatment of the relation between kinds, forms, and individuals is more developed and (I think) more consistent than Balme's. (I discuss what I take to be the inconsistency in Balme's version of the position below in n. 1151.) For this reason, I primarily follow Lennox in my discussion. Also Balme denies that Aristotle's biology was "essentialist" whereas Lennox thinks Aristotle's position constitutes a kind of essentialism. I think this difference is primarily terminological. Both reject the traditional, Moderate Realist, interpretation of zoological forms, and both think there is an ontological basis for animal groupings and, in particular, for the uncuttability of the uncuttable forms. Whether a view of the sort they both attribute to Aristotle qualifies as "essentialist" depends on what we should mean by "essentialist", and this depends partly on the history of that term in philosophy and biology—issues which need not concern us here.

[102] *Parts of Animals* IV.12 693a15-17 and 694b12-16. See Lennox's discussions in 1987b 356 and 1985 80-81.

[103] Lennox 1987b 358.

necks of other members, likewise with the width of his beak. While there is a teleological explanation why crane-range leg-lengths go along with crane-range beaks-widths, there is no such explanation why a neck of this absolutely determinate length should be found in a bird with a beak of this absolutely determinate width. The conjunction of these determinate characteristics is either a matter of chance or else due to an efficient cause (if the characteristics were both inherited from the father) or a material cause (e.g., if the characteristics are all results of being earthy).[104] If the neck-length and beak-width are heritable (as at least some such characteristics are), then they constitute part of the particular crane's form, but differences at this level of specificity between him and other cranes do not constitute otherness-in-form because they are teleologically irrelevant.[105] Lennox explains:

> Every individual of a kind will have its organs and tissues completely differentiated—they will have a precise hardness or softness, texture, hue, temperature, viscosity, width, length, and so on. But there will only be a *range* of these precisely determined qualities relevant to the organism's life. Individuals which differ *within* this range do not differ essentially or in form, but only 'incidentally'. Two individuals may be one in form while having every qualitative property instantiated to a different degree within the appropriate range. But these individuating differences will not be relevant to a functional account of the organism's nature…
>
> If to be one in form is to be indivisible in account in the way specified, then numerically many individuals will be indistinguishable with respect to that account. If that account names only teleological features, those individuals will be identical with respect to those features required for each of them to exist. Those features, however, will vary from individual to individual in ways which do not entail altering their functions in ways crucial to the organism's life. Such variation between individuals is compatible with their being one in form. (1985 81-2)

To support this view of essence, both Balme and Lennox point to *Generation of Animals* V.1, which limits teleological explanation to (determinable) features common to all the members of species:

> About these {viz. eye-color, height, voice-pitch and qualities hair or feathers} and such things, we must no longer think that there is the same manner (τρόπον) of cause. For whichever features (ἔργα) are neither common to nature nor distinctive of the particular kind, none of these either are or are generated for the sake of

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[104] It follows that it is possible to give explanation of such determinate characteristics, along the lines given in *Generation of Animals* V, but these will not be explanations of why some *kind of animal* should possess the relevant characteristic, but rather why *any animal* should possess it, if its matter happens to be constituted in a certain way.
[105] Balme 1987b 298.

> anything. For, while the eye is for the sake of something, {its being} blue is not for the sake of anything, unless the affection is a distinguishing characteristic of the kind. In some{animals}, it is not connected with the account of the οὐσία; but, since it comes to be by necessity, one must reduce (ἀνακτέον) {it} to the matter and the moving principle. (778a30-6)

> Thus each thing is for the sake of something; through this cause and through the remaining {causes} everything is generated that either belongs in the account of a particular thing, or is what the thing is for the sake of, or else is for the sake of something. And, whatever generation there is amongst things that are not such, the cause of such things must be sought in their movement and in their generation, since the differences occur in the very composition (σύντασις) {of the animal}. For, while it has an eye from necessity (for an animal is supposed to be such), though such an eye is from necessity, it is not from the same necessity but another manner {of necessity}: that it is such as to act such by nature or to be affected. (778b10-19)

2.4.3 Sameness in kind revisited

If Balme and Lennox are correct that an uncuttable form coheres into a unit in the same way that a kind does, with its only distinction being its indivisibility, then forms are a limiting case of kinds, and the indivisibility of these forms tells us something significant about the sameness-in-kind relationship.

We observed earlier that commensurability (or difference in the more and the less) is a necessary condition for sameness-in-kind, but now we can see that it is not sufficient. There also needs to be a causal unity between the various commensurable features. So we can speculatively analyze Aristotelian sameness-in-kind as follows:

> A set of objects are the same in kind when there is a set of ranges along "more-and-less" continua such (1) that each object has a characteristic within the relevant range along each continuum and (2) being within the relevant range along each continuum is causally connected to being within the relevant range along each other continuum.

The kind then, can be seen as a field, constituted by commensurability and causal relations, which can be subdivided into smaller fields. This field is the intelligible matter out of which the forms are generated by this process of subdivision. An uncuttable form is a field that

contains no subfields of the appropriate sort, and so cannot serve as intelligible matter for a division. No narrower concept is possible, because the result of any further attempted division would lack the unity among its characteristics necessary for it to function as a term in a proposition.

2.4.4 An objection to the embryological argument

If a given characteristic, say snubness of nose, can be inherited from father to child, it must be in some sense a formal rather than a material feature, but must this mean that the characteristic is included in the father's form—that it is a component of that very form which makes the father a man rather than a heap of flesh and bone? Why couldn't the father possess both the form of man and also a distinct form for snubness? Aristotle sometimes uses "form" quite broadly to denote any characteristic acquired in a change. If the father causes his child to be snub-nosed, it will be by passing the snub-nosed form onto him; therefore the father must have a snub-nosed form, but this needn't mean that the father's form itself includes being snub-nosed and differs on this account from the form of his roman-nosed neighbor.

In general, each man may possess, in addition to the form that makes him the οὐσία he is, any number of accidental forms, which he possesses not *qua* being a certain οὐσία but *qua* being made of a certain parcel of matter. Though these accidental forms would be describable in some contexts as forms, and though they would be the sort of thing that can be conveyed to offspring through seminal motions, they would not be part of the man's form. If this is correct, then the form that makes a given man the οὐσία he is could after all be a universal human form shared by all men. Each man could possess (and pass on) both the human form and the many accidental forms that distinguish him from other men. One might draw support for this view from Aristotle's talk of there being *motions*, rather than *a motion*, in the semen, and from the fact that he distinguishes between the different powers (δυνάμεις) in the semen corresponding to different traits that can be passed on (767b24ff).[106]

[106] This argument is related to one made by G.E.R. Lloyd (1990 21ff). He responded to Balme that that a father can pass his distinguishing characteristics to his offspring *qua* efficient cause rather than *qua* formal cause. However, Lloyd stresses the fact that the efficient cause need not always possess the form it imparts in a change. To use Lloyd's own example: an oven can cook eggs into a soufflé though the oven does not possess a soufflé-form. As the

This position becomes implausible, however, when one considers in detail what it would mean. The human form must include having a nose—not just any nose but a human nose, which differs from the noses of other animals in size, shape, and other features along more-or-less continua. Men's noses differ from one another along these same continua: Cyrano's nose is longer than Christian's and a snub nose is differently shaped than a roman nose. The view we're entertaining would have to hold that the human-form is responsible for getting a particular man's nose within the range of human noses and that, after it has done this, another form steps in to cause the nose to assume its particular place within this range. This is a strangely unparsimonious theory and it is not the most natural reading of Aristotle's text. It is more plausible to hold that the precise shape of a man's nose is caused by the precise form-conveying motion communicated by his father, and that this shape falls within a certain range because the motion also fell within a certain range.

Moreover, although Aristotle does sometimes speak of multiple movements and of different powers in the semen, his treatment emphasizes the unity of these movements and powers rather than their distinctness. Consider the following passages, for example:

> So it's especially natural for {the motion or potential} due to maleness (ᾗ ἄρρεν) and {the motion or potential} due to the father (ᾗ πατὴρ) to master or be mastered simultaneously; for the difference is small, so it's no task for both to result simultaneously—for Socrates is a man of a certain sort (ἀνὴρ τοιόσδε τις). That's why, for the most part, the males are like their father and females like their mother—for {in this last case} {1} displacement came about simultaneously for

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oven makes the soufflé by cooking it rather than through being a soufflé itself, so the father may make the child have a snub-nose through causing certain motions in the embryo rather than through himself being snub-nosed. I think Lloyd's argument is besides the point. The explanandum in IV.3 is resemblance of children to their parents. So *ex hypothesi* the father is snub-nosed, and what must be explained is how his being snub-nosed (rather than merely some motion imparted by him) causes his child to be so. The seminal motion is only relevant insofar as it serves as a conduit for his snub-nosed form. Indeed seminal motions are postulated precisely as means of form-transference. Moreover, even in the soufflé case, the oven as efficient cause passes something that it itself has into the eggs: heat. As a consequence of some of their material features, the eggs respond to this heat by becoming a soufflé. The motions in the semen are analogous to the oven's heat (indeed they're a kind of heat), but it is only very specific motions that cause that which can be "cooked" into a man to develop a snub rather than a roman nose. These very same motions in the father's blood cause the nutrient he eats to be "cooked" in such a fashion that he continues to exist as the snub-nosed man he is. So if these motions are reproduced in the child's blood through the semen it is the father's snubness of nose that it passed on, with the seminal motions serving as a tool to produce this form in the child. In the same way, the oven when it passes heat into eggs, serves as a tool by which the cook reproduces in the eggs the soufflé-form that he has in his soul. Because IV.3's explanandum is the resemblance to the father and not (e.g.) the child's snub-nose as such, the chapter's question is analogous to that of how the cook causes the soufflé not how the oven or the heat causes it. (Questions of the latter sort are addressed in V.) The primary value of Lloyd's argument, in my opinion, is the questions it raises about the nature of efficient causes and form-transference. Reflection on these questions leads to the question of what makes the many features reproduced through (seemingly distinct) seminal motions qualify as a single form reproduced rather than many distinct forms.

> both {the male way and the paternal way}, and {2}, while female is opposite to male, the mother is opposite to the father, and {3} displacement is into the opposites. But if, while the movement from the male masters, the {movement} from Socrates does not master, or if the latter {movement} does {master}, while the former doesn't, then it results that males come to be resembling the mother, and females resembling the father. (768a22-27)

> The patient displaces {the affecting thing} and is not mastered, either through a deficiency of the potency of the concocter and mover or through the abundance and coldness of what is being concocted and defined; for, while the mover, mastering here but not there, makes the conception (συνιστάμενον) multi-shaped, as happens in the case of athletes through their overeating—for due to the quantity of the food, the nature is not able to master it so that it grows proportionately and remains the same shape; the parts become other (ἀλλοῖα), sometimes almost so much that none looks like it did before. (768b25-32)

Notice that, though the movements that make the offspring resemble Socrates are distinguished from the movements that make the offspring male, the difference between them is said to be small, and the resemblance to Socrates is treated as a unitary thing, rather than as a set of independent characteristics. Why would this be if, in addition to the human form, Socrates transmits a host of accidental forms? In the second quote we see that a special explanation is required for the fact that a form can master in one part but not another. Presumably the explanandum here is supposed to be how a child can have, e.g., its father's eyes and its mother's nose. That an explanation is required shows that Aristotle thinks of the transmitted motions as a unity carrying a single form. Whenever motions or powers of motions are distinguished, Aristotle guards against the implication that they are entirely distinct. He treats the set of movements emanating from the father as a single, if multi-aspectual, form-conveying efficient cause. This cause can succeed or fail to master the matter in any of several respects, but it remains one motion-set that has these several successes and failures.

For these reasons, I think Balme and Cooper are right to read the *Generation of Animals* as maintaining that the movements contributed by the father to generation convey a single form which is distinctive to him.[107] When I refer to "particular forms" henceforth I will mean forms of the sort required by this theory, and I will assume that such forms are related to one another and to the uncuttable forms in which they fall in the ways described by Balme and Lennox. I turn

[107] I say of the *Generation of Animals* as a whole and not just of IV.3, though some commentators (e.g., Furth 1988 133-7, 1990) have argued that the IV.3 is an anomalous chapter. For a response to this argument see Balme 1987c 293 n. 14.

now to the question of whether particular forms so conceived are consistent with the texts that are usually called upon to show that Aristotelian forms are universals.

2.4.5 Can any particular forms interpretation be maintained?

In essence, there are two main reasons to think that forms must be universal rather than particular: (1) forms can be defined, but definition is always of the universal rather than the particular; (2) sometimes Aristotle identifies form-matter composites with particulars and their forms with universals.

To deal with both issues, it will be helpful to distinguish between what I'll call the "logical" and "physical" senses of "form"—the senses in which it is customary to use "species" and "form" respectively as translations for εἶδος. Balme and Lennox stress the relation between the two senses. In the logical sense, form is the determination of a kind (or genus) into a species. In the physical sense, it is the determination of matter into an actual thing. In each sense, form is the determination of a determinable; it is what something actually is considered in contrast to alternative possibilities admitted logically by its kind or physically by its matter. Moreover the same thing is often form in both senses. The human form is what determines the kind animal into the form man, and it is what actualizes human matter into a man.

When I say that the human form actualizes human matter into a man, I'm speaking about man in general. If I ask what actualizes Socrates' particular matter into Socrates, the answer is Socrates' form, and if this form is a particular, it differs qualitatively from Callias'. There remains, however, an important way in which Socrates' form is the same as Callias'—for Socrates and Callias' are *the same in form*. It follows from the conception of essence discussed in the last section that this sameness-in-form does not consist in the two men sharing a determinate identical characteristic or element. Instead, it consists in their being determinably alike at the lowest level of determination at which each of them remains a teleological unity rather than an aggregate of accidentally related characteristics. Socrates' whiteness and the snubness of his nose are parts of one unitary οὐσία, but only *qua* determinations of wider, essentially human determinable characteristics. Considered as Socrates' distinctive form—which he can pass on to his children—Socrates' form is particular and absolutely determinate;

but, considered as an essence, Socrates' form is καθόλου and determinable—indeed its universality may be said to consist in its very determinability. It is only insofar as it is an instance of the relevant determinable that Socrates' form is a unity, and only as a unity that it counts as a single form unifying his matter, rather than as a host of distinct characteristics possessed by (portions of) that matter.

Thus it becomes a subtle question whether it is the determinable human form or the determinate Socratic form that makes Socrates the οὐσία he is. The answer cannot be either the determinable or the determinate form *simpliciter*. It must be the determinate Socratic form *qua* determination of the human form. In most contexts, if asked what Socrates' form is, we would have to respond with an account of the determinable human form. There are two reasons for this. First, Socrates' form is a unity just insofar as it is a determination of the human form. Second, and in part because of this, we do not have words in which we could describe Socrates' particular form as such. To give an account of it, one would need to list his many characteristics. Even if an exhaustive list could be produced, it would not make clear how the characteristics constitute a unity.[108] Thus it is doubtful that there could be any such thing as an account of Socrates' distinctive form.[109] What Socrates is can only be formulated universally, but this need not mean that his form is itself universal—that it is identical to the other forms covered by the same universal account.[110]

The subtlety of this account and the ambiguity it reveals in the question about whether Socrates has a particular form (or essence or definition) recommends it as an interpretation, for we should expect Aristotle's view on this issue to be difficult and nuanced. Consider the role of

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[108] On this issue (though in somewhat different terms) see *Posterior Analytics* I.24.

[109] On this point, I am disagreeing with Balme. See n. 115 below.

[110] As Lennox has suggested in private correspondence, this point can be reinforced by considering a possible objection: "What if it were the case that the *bios* of each individual of a species were subtly different in every crucial respect; for example each member of a species of salamander were keyed into slightly different prey, leading to slightly different vision, digestion, locomotion, etc.?" As this case is formulated, the life-styles and attributes of the differences within the salamander-ranges along different axes are distributed not randomly, but systematically in a way teleologically unified by a subtly different salamander life-styles. On the view I'm advocating, if this is the case, then salamander would not be an uncuttable form; rather, each individual salamander (along with any others that happened to be just like him) would constitute his own uncuttable form. For the very uncuttability of a form consists in the fact that these sort of systematic causal connection cannot be found between further determinations of its attributes. Since Aristotle seems to think that the uncuttable forms are narrow types rather than individual specimens, this interpretation of uncuttability would be ruled out if the evidence was that Aristotle thought that the differences between the individual specimens admitted of this sort of systematic explanation, but there is no evidence that he held this, and the explanations he gives in *Generation of Animals* V give us every sign that he thought the contrary.

the question in the *Metaphysics*. Z.13 ends in perplexity over whether οὐσίαι can be defined, suggesting that they can in one way but not in another. This suggestion is not further developed in Z, which concludes without any substantive solution to the ἀπορία. However, Z.17's "fresh start" paves the way for a solution by reminding us that, as metaphysicians searching for the principles of being, we should be thinking of οὐσίαι as causes. With this orientation in mind, and now with more context, it is worth looking again at the Λ.5 passage that is generally regarded providing the strongest evidence for particular forms in the *Metaphysics*.

> Further one must see that, while some {causes and principles} can be stated (εἰπεῖν) universally, others cannot. Indeed, of everything, the first principles (πρῶται ἀρχαὶ) are the first *this* in actuality (τὸ ἐνεργείᾳ πρωτον τοδὶ) and {2} another {this} in potentiality (ἄλλο ὃ δυνάμει). So, then, these are not universals;[111] for the particular is a principle of particulars; for man {is the principle} of man universally, but there is none; for Peleus {is the principle} of Achilles, and your father of you, and this B of this BA, but B {is the principle} of BA *simpliciter*. Therefore if indeed the {principles} of οὐσίαι are {their} causes and elements, but other {principles are causes or elements} of other things, as has been said, {the principles} of what is not in the same kind—of colors, of sounds, of οὐσίαι, of qualities—{are different from one another} except by analogy; and the {principles} of things that are in the same form are other, not in form but because of different particulars—{there's} both your matter and form and mover and mine, but their universal account is the same. (Metaphysics Λ.5 1071a17-29)

Most of the discussion of this passage has focused on the (seeming) claim at 1017a27-9 that different people have different formal causes in addition to their different material and efficient causes, but the preceding lines are at least as interesting.[112] The passage is part of a more general discussion of whether the causes or principles of different things are the same or different. Our quote begins with the point that some causes can be stated (εἰπεῖν) universally. The context suggests that the cases Aristotle has in mind are those in which the causes are one in form or kind rather than merely one by analogy, but, whichever cases he's talking about, it is significant it is only the *statement* of the causes that is said to be universal. We're told that (in these cases at least) there *are not* any universals as such.

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[111] Or: "the universals do not exist".

[112] I say "(seeming) claim", because it is controversial whether the possessive pronouns at 1071a28 and 29 apply to the form and mover or only to the matter. See Konstan and Ramelli 2006 for a useful summary of the controversy and for philological considerations in favor of the narrower construal. I think the context requires the wider construal. We have just been given the example of different fathers as an example of different causes, and fathers are moving causes, so it would be odd for the moving cause of two (non-brothers) to now be treated as the same. And it does no good to say that it is the same universally because the point of the passage, on the whole, is that the statement of a cause can be universal even when there are different particular causes in different particular cases.

The upshot of this is that universality is a way of *stating* beings, especially causes. For all Aristotle says here, it may be the only way in which causes can be stated, and we have reason to think that this is the case. But, indispensable as they are as a means of expression, universals are not themselves beings, causes, or principles. This reading coheres nicely with beginning of *Posterior Analytics* I.11:

> It is not necessary that there be forms or some one thing besides the many if there is to be demonstration; however it is necessary that it be true to state (εἰπεῖν) one thing of many; for there will not be a universal if this is not so, and if there is not a universal, there will not be a middle, so that there won't be a demonstration. Therefore, there must be some one and the same thing applying to many non-homonymously. (75a5-9)[113]

Demonstration is, for Aristotle, our means of comprehending things in light of their causes, and we're told that it requires not existing forms—i.e., moderate realist universals—but only the ability to *state* one thing truly of many, and he implies that universals derive from such truths, rather than the reverse.

The key term in these passages is "εἰπεῖν", which significantly is also the verb Plato uses at *Meno* 77a6 where he has Socrates ask Meno to "state of virtue as a whole what it is" ("κατὰ ὅλου εἰπὼν ἀρετῆς πέρι ὅτι ἐστίν"). It is a linguistic word, but Aristotle's point needn't be merely linguistic. Evidently something is stated universally when the universal λόγος of multiple things is the same, and "λόγος" does not just mean speech. The point must be that certain beings, and, in particular principles and causes can only be formulated, thought, or conceived universally.[114] Putting aside for the time being questions of the relation between thought and language, the outlines of the position are clear: though (at least some) causal accounts are formulated universally, the causes they describe are particular beings that cause other particular beings. Thus, Z.17's advice to consider forms and οὐσίαι as causes may require considering them universally, and Λ.5 shows us that we can do this even if the forms and οὐσίαι are not

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[113]Modrak overlooks this passage, amongst others, when she writes that

> Aristotle makes no attempt to derive the capacity for reasoning from the ability to apprehend universals—although a case can be made that a creature lacking universal concepts would be unable to draw inferences. (2001 252)

Aristotle's point here is that universals are necessary for demonstration, because they are required as middle terms for deduction. And the *Prior Analytics* as a whole can be taken as a treatise on the role of universals in deduction and of deduction in all forms of reasoning.

[114] And, indeed, Aristotle tells us just this about causes in *Posterior Analytics* I.31, where we learn (amongst other things) that "the universal is honorable because it reveals the cause" (88a5-6).

themselves universals, because universality is (or at least can be) a feature of our mode of describing something, rather than a feature of the thing itself.

If the preceding is correct, it is not difficult to understand why Aristotle would often identify form with universality, even if he thinks of forms as particulars. However, it may remain surprising that he should account for a thing's particularity by citing its matter as he does. The most notable example is the passage from *Metaphysics* Z.8 mentioned several times above. Here it is in context:

> Consequently it's clear that there's no need to construct a form as a model (for they were sought in these cases {viz. those of animals} most of all—for these things are most of all substances) but the generator is sufficient for production and is the cause of the form's being in the matter; but already {there's} the full thing, such a form in this flesh and bone, Callias and Socrates; and, while they're different through the matter (for it's different) they're the same in form (for the form is uncuttable). (1034a2-8)

Balme points out that the passage says that Socrates and Callias differ *through* rather than *in* their matter.[115] This could mean that there are material (and efficient) causes for the difference

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[115] Balme 1987c 305. Balme's own account of the passage is brief and enmeshed in an exploration of the possibility that a full definition and demonstration can be given of a particular at a given moment, including all of its matter. He writes:

> If the differentiae are all applied together to the genus, as Aristotle says they should be (643b24), they can only be applied disjunctively, for as he often points out the genus divides into opposed differentiae: fish is not simultaneously scaly and not-scaly, but either/or. The material accidents could be added in the same way: man is blue-eyed or brown-eyed or… The definition would be of human, common to both Socrates and Callias, and at the same time it would define each individually if certain disjunctives were selected in each case. If the differentiae that are particularly applicable to Socrates were proved by a causal explanation, then the result would be a rigorous *apodeixis* of Socrates' own form, as perceived in a certain moment in the changing actualization of his matter. The definition itself would be both general and particular, and it would still be true to say that Socrates and Callias are the same in form. They differ because that form has been actualized in separate and different proximate matters, so that each has an individual form. Aristotle does not say that they are other *in* matter but *because of* matter (1034a7). Otherness must be formal, even when it is caused by matter and movement. (1987c 304-5)

Balme goes on to note that Aristotle never does engage in this sort of division below the level of the uncuttable forms but instead treats the details as a result of "bringing matter into the account" and cites *Generation of Animals* V.1 to the effect that Aristotle proceeds in this manner because below the level of the uncuttable forms distinguishing features are not "teleologically necessary to the animal" but "due only to matter and movement". Balme thinks that nevertheless it would be possible at least in principle to perform the rigorous demonstration of Socrates form (including his matter) at a given moment, and that there is something optional about the tack Aristotle takes here. But I don't think this is right. If the snubness of Socrates' nose is not teleologically united with his other characteristics, then, even if the snubness can be demonstrated from its material or efficient cases, its co-occurrence with the other characteristics will be an indemonstrable, chance event. Even if some set of Socrates' distinguishing characteristics could be demonstrated of him *qua* possessor of a certain type of material nature (e.g., if they turn out to be effects of being unusually dry), these features would remain accidental to him *qua* unity and so accidental to him as the οὐσία that he is. A complete definition of Socrates' individual form that included his accidents would

between Socrates and Callias but no formal or final cause for the difference. Of course, each individual characteristic in which Socrates differs from Callias will have a formal cause, and these causes may be part of Socrates' particular form; however, insofar as one of Socrates' characteristics differs from the corresponding characteristic in Callias, there will be no final cause for Socrates' possession of it, and in particular there will be no final-causal unity between it and Socrates' other characteristics. There will be no single account of why the determinable human form is determined in Socrates in the distinctive way it is along all the various axes along which it is determined. At the level of specificity at which Socrates differs from Callias', each of Socrates characteristics will have to be explained separately by material and efficient causes, even though these same traits, considered less determinately, are teleologically explicable, and even though the very same cause is at work at both levels of determination, because the unity of this (multi-aspectual) cause is obscured when it is stated too determinately.[116]

I am not entirely satisfied with this reading of the Z.8 passage. It makes Aristotle's point remarkably subtle for something that is never made fully explicit. However, I know of no reading that sits perfectly with all of the texts, and I think this reading sits with the sum of them better than any other. If we accept this account, we needn't suppose that Aristotle has all its subtleties in mind whenever he speaks of forms as universals and composites as differing through their matter. He may sometimes treat the form of man as though it were an immanent universal, for the sake of simplicity. Aristotle regularly uses simplified examples that he regards as factually incorrect. Most notably, he does not think that "biped animal" is the definition of man, that bronze spheres are οὐσίαι, or that thunder is caused by the extinguishing of fire in the clouds.[117]

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lack the unity proper to a definition: the ultimate determination of each of the determinable human characteristics would be unified with each of the determinable under which it falls, but it would not be unified with the ultimate determinations along the other axes. It is not clear to me how Balme's manner of bringing matter into the explanation is supposed to cohere with the idea of particular forms of the sort that he thinks fathers pass on through the motions in their seamen. He speaks as though the human form as a complex set of disjunctions existed in every man and that each man's constituent matter is responsible for which disjuncts are actualized; but, if this were right, the father could not pass on his distinctive features without passing on his matter.

[116] One can, of course, explain the resemblance between child and parent considered as a resemblance. That's what IV.3 does. What one cannot unitarily explain is the of conjunction (in either father or son) of the specific characteristics in which the holistic resemblance consists.

[117] See *Meteorology* II.9, where Aristotle gives his own account of thunder and rejects the view that it is due to the extinguishing of fire in the clouds, which view he attributes to Empedocles and Anaxagoras.

2.5 UNIVERSALS AS INTELIGIBLE MATTER

I have argued that the relationship between the members of an Aristotelian kind is such that kinds cannot be immanent universals, and I have presented an interpretation of Aristotelian forms on which they do not differ from kinds in the respects that exclude kinds from being immanent universals. If kinds and forms are intelligible matter—i.e., if they are the susceptibility of their members to be manipulated in certain ways in thought—, then kinds are not wholly mind-independent. And we have seen other evidence that Aristotle regards universality as a feature of the manner in which we express or understand reality rather than as a feature of reality in its own right. Surely there is a mind-independent basis for this way of understanding reality and for our being able to perform the relevant mental manipulations. But if, as we've seen, this basis consists in commensurability relations between the kind's members (as well as causal relations between each members features), then it cannot be that each member possesses, *qua* member, an element or characteristic that is qualitatively identical to an element or characteristic in each other member. Aristotle did not, therefore, believe in the metaphysics of Moderate Realism. The epistemology of Moderate Realism—chiefly the theory that concepts are formed from perceptual data by a process of context-omission—cannot stand without this metaphysical basis. So Aristotle cannot have consistently held Moderate Realism. Indeed we've seen several passage in which he contemplates and rejects the position, the most notable here being *Metaphysics* H.6 and I.8 and 10.

What Aristotle is rejecting in these passages is not only the Moderate Realist's immanent universals, but, more broadly, the Realist program of accounting for the universality of knowledge by seeking or positing mind-independent, universal, proper objects for our concepts. He is an opponent of Platonic Forms including the immanent versions of them posited by other Academics. This inclusive notion of Platonic Form (viz. of ἰδέα), which he employs in the critique of the Theory of Forms in *Metaphysics* A.9 and M, corresponds to the "brand-name" Realist sense of universal, and it is the existence of any such objects that Aristotle rejects in saying "goodbye" to the forms.

Recall that Plato's arguments for the existence of forms turned on the requirements for knowledge, and that Aristotle takes these arguments quite seriously. In Chapter 1, we saw Aristotle acknowledge that the Platonic thesis that e-knowledge requires universal objects, when

combined with what Aristotle takes to be powerful reasons for rejecting the existence of such objects, generates what Aristotle calls in *Metaphysics* B.4 "the hardest ἀπορία of all, and the most necessary to examine" (999a24-5). Aristotle gives his solution in *Metaphysics* M.10, by qualifying the premise that e-knowledge requires universal objects.

> That all knowledge (ἐπιστήμη) is universal, so that it is necessary also for the principles of existents to be universal and not separated substances, does contain the greatest puzzle of those we have discussed. However, though the statement is true in one way, it is not true in another. For knowledge is twofold, as knowing (ἐπίστασθαι) also is: one is {knowing} in potentiality and the other in actuality. While the potential, being as matter, is universal and indefinite and is of the universal and indefinite, the actuality is definite and of the definite, being a certain *this* of a certain *this*. It is rather incidentally that sight sees the universal color, since the color that it sees is a color, and what the grammarian contemplates, a certain A, is an A. If the principles are universal, it is necessary for what is from them also to be universal, just as in the case of demonstration; but if this is so, nothing will be separate or a substance. It is clear rather that, while e-knowledge is universal in a way, in a way it is not. (1087a10-25)

A distinction is drawn between ἐπιστήμη in potentiality and in actuality, and Aristotle maintains that only the former has universal objects. Ἐπιστήμη in actuality, is a state of the sort that a geometer is in when he is busy appreciating a proof, whereas ἐπιστήμη in potentiality is the ability to come into such a state. Normally Aristotle uses "ἐπιστήμη" to refer to the potentiality, as we do with our "knowledge". A geometer, for example, knows the Pythagorean theorem even when he is not entertaining thoughts of it.

In general, for Aristotle, actuality is prior to potentiality, which is to be understood in terms of its actualizations. Ἐπιστήμη, then, in its most fundamental sense, is the active contemplation of a particular in a certain way. Ἐπιστήμη in potentiality is just the ability to contemplate certain objects in this way. Since the actual knowing is of a particular, the potentiality must be an ability to know particulars, it cannot have separate universal objects. Rather its being "of universals" must amount to its being a single potentiality which can be actualized into knowing of many different things, as a single parcel of matter can be worked up into many different forms.

The potentiality is "as matter" and indeterminate in that it is not in its own right any particular knowing, as such it is not of any particular thing. It is merely an ability to know, as physical matter is an ability to be something. And, as physical matter—e.g., bronze—cannot be actualized into anything whatsoever but can only into any of a certain set of contrary forms, so

ἐπιστήμη in potentiality cannot be actualized into any ἐπιστήμη whatsoever of any object whatsoever, but can only be actualized into ἐπιστήμη of any of member a certain set of contrary objects. This is what it is for it to be "of the universal and indefinite". To be a universal then is to be intelligible matter.

Notice that M.10 makes this point about all universals, not only about kinds. This supports my earlier provisional conclusion (following Balme and Lennox) that forms are a special case of kinds and enjoy the same sort of (non-realist) unity. And M.10 and the discussions of kinds are not the only contexts in which Aristotle casts the relation between universal and particular knowledge in terms of the distinction between potentiality and actuality. A similar move can be found also in a passage from *Posterior Analytics* I.24, which I will quote shortly. The topic of that chapter is whether partial (κατὰ μέρος) demonstrations (e.g., a demonstration that an isosceles triangle has an angle sum equal to that of two right angles) or universal ones (e.g., a corresponding demonstration with "triangle" as the minor term), are superior. The discussion is naturally read with *Metaphysics* M.10, since one of the arguments in favor of partial demonstrations rests on such premises as that "the universal is not something besides the particulars", universal premises are "less about an existent" (περὶ ὄντος ἧττον) than partial ones, and universal demonstrations are about "non-existent" things and create the impression that they exist (85a31-b3).[118]

If I am correct in my speculations above (in §1.2.4) about the inspiration for the term καθόλου, then this chapter has a special relevance to Aristotle's view of universality. Recall that Plato's Socrates uses the phrase "κατὰ ὅλου" to describe the way in which he wants Meno to

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[118] The argument runs as follows:

> Again, if, while the universal is not something besides the particulars, the demonstration instills the belief that in accordance with which it demonstrates is some such thing and some natural thing that pertains among the existents (e.g. a triangle besides the several {triangles}, a figure besides the several {figures}, a number besides the several numbers), and a {demonstration} about an existent is better than one about a non-existent (βελτίων δ' ἡ περὶ ὄντος ἢ μὴ ὄντος), and one by which one is not fooled {is better} than by which one is, and the universal is such—for, in proceeding, {universal demonstrations} show as they do with proportion: e.g., that anything that's a certain such is a proposition, which {such} is neither line nor number nor solid nor plane, but rather about this something; now if this, while more universal, is less about an existent than the partial and {if} it instills a false belief, then the universal will be worse than the partial.

Parts of Animals I.4 (644a23-b7) also considers an argument in favor of (what would amount to) partial demonstrations on the grounds that the uncuttable forms are or are nearer to the οὐσίαι. Interestingly the reasons it gives against it are more pragmatic and less a matter of epistemic principle than those given in the *Posterior Analytics* I.24.

state what virtue is (at *Meno* 77a). Meno's earlier attempts to state what virtue is consisted in sets of definitions, taught to him by Gorgias, of individual virtues or virtues for types of people. Since Socrates is seeking a definition of virtue in order to use it as a premise in a deduction about whether or not virtue is teachable, Meno's initial definitions would have led to a set of particular demonstrations concerning whether different virtues were teachable, and not to any universal knowledge of virtue—except "in the sophistic manner", as Aristotle says in *Posterior Analytics* I.5 about someone who deduces separately about each sort of triangle that it has an angle sum equal to that of two right angles (74a25-32, cf. I.2 71a9). I.24 focuses on this same triangle example and defends Socrates approach over that of Meno and his sophist teachers. After a series of arguments in favor of universal demonstrations, that chapter concludes as follows:

> But some of these remarks are rationalistic (λογικός); it is most clear that the universal is more authoritative, because, {in} having the prior of the propositions, one knows {εἰδέναι} somehow also the posterior, and we have {it} potentially; e.g. if someone knows that every triangle {has} two rights, then {he} knows also that isosceles {does} because {it's} a triangle; but one who has this premise in no way knows the universal, neither potentially nor actually. And while the universal is thinkable, the partial terminates in perception. (86a22-30)

Here, as in *Metaphysics* M.10, the possessor of universal knowledge has in potentiality the particular knowledge subsumed by it. There are two differences. First, Aristotle does not go so far here as to identify the universal knowledge with a potentiality as he does in M.10, but his point does not require this, and he says nothing that tells against this identification. Second, in this passage, the contrast to universals is lower universals rather than individuals, as it is in M.10. However, it is because partial demonstrations are supposedly more about particulars, which are the only things that exist, that they are favored by the argument to which Aristotle is responding.[119] Presumably, then, someone who knows something about animals will thereby know it in potentiality about Socrates as well as about man.

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[119] Also, I.24's immediately preceding arguments in favor of the universal demonstration recalls *Metaphysics*' initial statement (in B.4) of the puzzle solved in M.10. Compare:

> Again, to whatever extent {a demonstration} is partial, it tends towards the infinite, and the universal [tends] towards the simple and the finite. But, while, *qua* infinite {things} are not knowable (ἐπιστητόν), *qua* delimited they are knowable. Therefore things are more knowable *qua* universal than qua partial. (*Posterior Analytics* I.24 86a3-8)
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> Attached to these things {viz. principles} is the most difficult puzzle and the most necessary to study, to which the λόγος now turns. If there is nothing besides the particulars, and the particulars are infinite, how is it possible to get ἐπιστήμη of infinite things? For it is *qua* some one and the

While the *Posterior Analytics* I.24 passage does not provide independent evidence that Aristotle thinks that universal knowledge is a potentiality to which knowledge of particulars corresponds as the actuality, when combined with the material on kinds and matter, it does show that *Metaphysics* M.10's doctrine to this effect is continuous with a strand of thought running through a number of Aristotle's significant discussions of universality. We can conclude from this doctrine that Aristotelian universals are mind-dependent, though based in mind-independent relations. This means that, instead of explaining the universality of thought and knowledge in terms of universal objects, Aristotle understood universality in terms of its role in thought and knowledge. Whereas Plato's solution to the Problem of Concepts is metaphysical, Aristotle's is primarily psychological and epistemological. In the remaining chapters we will look at the role concepts play in knowledge, their nature as psychological states, and the processes and standards by which they are formed.

Based on our findings in this chapter, we can form certain expectations about what we will find. Since the instances of Aristotelian concepts are alternative determinations of a determinable, we should expect him to understand concept-formation as a process of utilizing the relationships between the alternative determinations to achieve a unitary awareness of them. Since Aristotle is concerned with the unity of each instance as well as the collective unity of the instances, we should expect his understanding of this process to cohere with an account of the factors that unify the parts of a being and of our knowledge of these factors. And, since there is evidence that Aristotle views universality as a feature of our means of stating or understanding causes, in particular, we should expect his view of concepts to be an integrated component of a view of explanation.

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same {thing} and *qua* something belonging universally to it that we come to know (γνωρίζειν) everything. (*Metaphysics* B.4 999a24-9)

3.0 ARISTOTLE ON CONCEPTUAL COGNITION

In Chapter 1, I defined the Problem of Concepts as the question of how it is that we can have unitary cognitions of (or applying to) pluralities of differing objects; and in Chapter 2, I argued against the traditional interpretation of Aristotle's answer to this question. In the course of doing so, I made a start on a positive account of Aristotle's solution to the problem. In particular I explained the nature of the relationships that must hold mind-independently between instances for them to be embraced under a concept, and sketched in the function of concepts as a means of apprehending causal relationships. The task of the remaining two chapters is to continue this positive account. The division of labor is as follows. The present chapter treats concepts as mature states and describes their role in cognition. The next and final chapter treats the processes and methods by which concepts are formed and perfected.

I begin where we began in Chapter 2, with *De Interpretatione* 1's idea of thoughts without division and combination, which I now (in §3.1) trace through a set of connected texts in the *Metaphysics* and *De Anima* to shed light on how concepts serve as units of thought. Special attention is paid to those concepts which are not only undivided but indivisible, and which Aristotle treats as a sort of knowledge (γνῶσις). This raises more general questions about the nature of concepts and knowledge, which are addressed in the remainder of the chapter. §3.2 begins with a discussion of Aristotle's conception of γνῶσις, which it then uses to shed light first on the status of indivisible concepts as γνώσεις and then on their role in ἐπιστήμη. §3.3 then takes up the sort of γνῶσις in which concepts consist, with an emphasis on its relation to perception and other γνώσεις.

Before making a start on this agenda, it is necessary to introduce and motivate some terminological conventions. Translation of Aristotle's technical vocabulary can sometimes be more confusing than clarifying, especially where he draws distinctions between a number of terms that are synonymous in normal Greek. Inevitably alternative renderings proliferate, often

with the same English word being used for different Greek terms by different translators (or even by the same translator). In such cases, serious study requires thinking of the term in the Greek, so commentators who translate the terms impose on their readers the burden of translating back in their heads. Accordingly, I've been leaving such terms as "φρόνησις" and "νοῦς" untranslated. This policy works well for nouns, but it is unmanageable for verbs because of the many grammatical transformations they must undergo in order to function in a sentence. Thus a problem is presented by several verbs naturally translated "know", which will come in for discussion in this chapter.

I have found an unhappy solution, which I will resort to only in those cases where the grammar makes it impossible to simply retain the Greek. I will prefix "e-", "g-", or "o-", to the verb "know" (and its derivatives) depending on whether it stands for "ἐπίστασθαι", "γιγνώσκειν", or "εἰδέναι".[1] I take it that "γνωρίζειν" means coming into "γνῶσις", so I usually translate it either "getting to g-know", though in some contexts I do not distinguish in the translation between it and γιγνώσκειν.[2] I use "know" without a prefix only when speaking in my own voice. I take it to be roughly equivalent to "γιγνώσκειν" but not to "ἐπίστασθαι", which has no English equivalent (though "understand" comes close).[3] The results of these policies, which include speaking of "e-knowledges", "o-knowables" and "g-ignorance", are barbarous, but

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[1] The prefixes are derived from Irwin and Fine (1995) who use the same letters as subscripts to mark the differences between the terms in their translations. Prefixes are more intrusive than the subscripts and this makes them more suitable for my purposes. Whereas subscripts subtly provide information about the Greek while enabling you to think of the terms in English, my purpose is to leave the words effectively untranslated while availing myself of the grammatical transformations possible to an English verb.

[2] Though this pair of words seems occasionally (e.g. in *Physics* I.1) to be used in a different relationship analogous to that between "ἐπίστασθαι" and "γιγνώσκειν".

[3] On the meaning of "ἐπιστήμη" in Aristotle, especially as it relates to "γνῶσις", see Burnyeat 1981, though I think he somewhat overstates the similarity between "ἐπίστασθαι" and "understand" (cf. Barnes 1994 81, Irwin 1988 530 n. 24). Also, Burnyeat is mistaken to follow Barnes (1975 97, cf. 1993 82) in applying to Aristotle Lyons' (1963 177) taxonomy of the knowledge verbs in Plato, according to which "εἰδέναι" is a genus subsuming "ἐπίστασθαι", "γιγνώσκειν". This cannot be correct, because there is at least one state—viz. perception—that qualifies as γνῶσις but not εἴδησις (*Posterior Analytics* II.19 99b38-9, I.31 87b39-a1). As opposed to both this view and Barnes' later (1993 82) skepticism that Aristotle "intended or felt any semantic differences" between "εἰδέναι" and "γιγνώσκειν", I think there is considerable evidence that "εἰδέναι" falls between the other two verbs in strength, being a bit stronger than "γιγνώσκειν" (and the normal English "know") without being as demanding as "ἐπίστασθαι"—for one can have εἴδησις of an object without γνῶσις of its cause (I.2 71b10-17, II.1 89b29-31, II.8 92a35-37). If one term is the genus, then, it is γνῶσις, with εἴδησις being universal γνῶσις, which (unlike perception) is independent of a "this" and a "now" (I.31 87b30-33), and ἐπιστήμη being an εἴδησις of something by inference from its causes. However, while this likely gets the relation of ἐπιστήμη and εἴδησις right, I don't think it can be quite correct for the relation between γνῶσις and the others, because Aristotle's view of the relation between the perceptual and intellectual faculties requires that γνῶσις be a succession rather than a γενός (see below §3.2.1).

barbarism can be a virtue when more natural modes of expression make it difficult to avoid imposing alien presuppositions on a text.

3.1 CONCEPTS AS UNITS OF THOUGHT

In §2.1.1, *De Interpretatione* 1 served a bridge between the vocabulary of concepts and Aristotle's texts. It will be instructive to begin again with that chapter, which I quote in full (with Bekker numbers at the end of each paragraph for ease of reference):

> First, we must posit what a name is and what a verb is, then what a denial, an affirmation, an assertion, and a λόγος are. (16a1-2)
>
> Things in the voice (φωνή) are symbols of affections in the soul, and written things are {symbols} of things in speech. And just as written things are not the same for everyone, neither are vocalizations (φωναί) the same; however, the things of which these are primarily signs—the affections (παθήματα) of the soul—are the same for everyone, and the things of which these are likenesses, the objects (πράγματα), are the same as well. (3-8)
>
> These things have been discussed in the *De Anima*—for they belong to another work—but, just as in the soul there are some thoughts without truth or falsehood and also others to which it is necessary for one of these to belong, so too with vocalizations; for the false and the true are about combination and division. (8-13)
>
> The names themselves and the verbs are like thoughts without combination (σύνθεσις) and division (διαίρεσις), e.g. man or white when nothing has been added, for they are not yet true or false. There is a sign of this, for even goatstag signifies something, but it is not yet true or false, unless existence or non-existence is added (either *simpliciter* or with regard to time). (13-18)

It is the "thoughts without combination and division" that we identified with concepts. They make appearances in other texts as well. Aristotle refers us to the *De Anima*'s discussion of thought (III.3-8),[4] and indeed in III.6 Aristotle speaks of "the thought of undivided things" and

[4] A note to Edghill's Oxford translation (cf. Modrak 2001 219) comments that "Great difficulty has been found in discovering any passage of the *De Anima* to which this can refer" and approves of Maier's transposition of the reference to 16a13 (after ἀληθές). But there is no difficulty unless one takes the *De Anima* to be cited on the relation between words, παθήματα, and objects; and this interpretation is neither required nor recommended by the context. Aristotle's stated topic is names and verbs (and later denials, affirmations, etc.). He gets purchase on these "things in the voice" by relating them to "παθήματα in the soul" and their objects. It is for a discussion of these παθήματα that he refers us to *De Anima*. Παθήματα (or at least πάθη) of the soul are a central topic throughout that work, being

tells us "the false and the true are amongst things in which there is already a sort of combining of thoughts" (430a26-8). The same idea can be seen also in a passage from III.8:

> But imagination (φαντασία) is different from claim or denial; for what's true or false is a complex (συμπλοκὴ) of thoughts. But how will the primary thoughts (τὰ πρῶτα νοήματα) differ from being images (φαντάσματα)? (432a10-13)

The context makes it clear that by "primary thoughts" Aristotle means those that, unlike claims and denials, are not complexes composed of other thoughts and are not, therefore, true or false.[5] This is why the reasoning used to distinguish the claims and denials from φαντασίαι fails in the case of the primary thoughts.[6] Such thoughts and their objects are discussed in a number of passages in the *Metaphysics*, to which we will turn after looking more closely at the material in *De Interpretatione* and *De Anima*.

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introduced in its first chapter (at 403a3) and returned to throughout. It is clear from 16a9-10 that the specific παθήματα Arisotle has in mind are thoughts, which are discussed in *De Anima* III.4-8, and the points *De Interpretatione* 1 proceeds to about φωναί closely parallel points made in *De Anima* III.6 about thoughts. Kretzmann (1974 8-9) has argued that the παθήματα in question are φαντάσματα rather than thoughts. He points out that in *De Anima* I.1, Aristotle includes "sensing generally" (which would presumably include φαντασία) among the πάθη of the soul, and argues that only if *De Interpretatione* 1's παθήματα are perceptual states does the claim that they are likenesses of πράγματα have "a chance of being true". This argument turns on an unduly narrow construal of "likening" (see Tselmanis 1985 196-8 and Charles 2000 80-82), and Aristotle's inclusion of "sensing generally" amongst the πάθη counts for little since Aristotle's next words (at 403a7-8) include thought also amongst the soul's πάθη. Modrak (2001 219) agrees with Kretzmann that the talk of likening at least strongly suggests that the παθήματα are φαντάσματα, though she ultimately endorses a more complex view on which νοήματα must also be involved in signification. In support of the identification of the παθήματα with φαντάσματα, she cites *De Anima* II.8 420b-27-33. This passage does establish that Aristotle thinks that φαντασία is necessary for φωνή to signify and it implies that some animals can signify on the basis of φαντασία without thought. However, other animals accomplish by φαντασία alone many things that human beings do by means of thought. And since νοήματα require φαντασία (for human beings at least), there is no tension between φωναί symbolizing thoughts and *De Anima* II.8's claims. And, in my opinion, the *De Interpretatione*'s easy move from παθήματα to νοήματα settles the case, especially when taken with the naturalness of the *De Anima* reference if we understand the text in this way.

[5] Not so clear, however, as to be devoid of scholarly controversy. In essence, there are two competing readings: (1) the "primary thoughts" are the most universal ones (which I identify in §3.1.3 as indivisible); (2) the "primary thoughts" are the first thoughts formed from perception. The first reading was proposed by Trendelenburg (1877), and the second is championed by Torstrik (1970) and Ross (1961). Freudenthal (1863) and Hicks (1907) support the reading I assume in the text. Against the first reading, Ross and others have noted that the most universal thoughts are least likely to be confused with φαντάσματα. The second is implausible because there is never any suggestion in Aristotle that the least universal thoughts generate more universal ones by combination and division. These and other considerations on all sides are weighed in great detail by Wedin (1988 125-128), who settles on the interpretation I regard as correct (though he then though he goes on [128-132] to discuss some considerations of dubious relevance that he thinks may tip the scales for some readers in favor of the second of the two alternative readings.

[6] Though we needn't stop over it here, it is worth noting the tension between the present passage's seeming presupposition that only claims and denials can be true or false and III.3's insistence that φαντασίαι can be (and usually are) false. (428a12, 18, b17). I suggest a resolution in n. 23 below.

Most of the attention given to *De Interpretatione* 1 has focused on 16a3-8, specifically on whether it presents "a theory of meaning", and, if so, whether this theory is adequate.[7] For our purposes it will be enough to note that the passage says that verbal items signify objects only by symbolizing psychological items which in turn symbolize objects and that, whereas the verbal items are conventional and may vary from one community to another (or perhaps even from one person to another), the psychological items and their objects are "the same for everyone".

The psychological items are soon identified with thoughts; and, when Aristotle says they are the same for everyone, he cannot mean that if one person thinks a certain thought everyone else must also do so. His point must be that, as objects exist independently of anyone's thought or language, so what it is to think a certain object is determined by the nature of that object and (perhaps) by general psychological facts, rather than by idiosyncrasies or decisions of any particular person or community.

The description of the psychological items as "likenesses" (ὁμοιώματα) of the objects implies that likeness is the relationship in virtue of which thoughts signify objects. Likeness plays a pronounced role in the *De Anima* and in Aristotle's natural philosophy generally, where efficient causation is often analyzed as a process of "likening" or form-transference.[8]

Until 16a8, Aristotle writes only of a general relation between speech, thought, and objects, without yet mentioning words or specifying the sorts of thoughts and objects to which they correspond. For all he has said, the described relation may apply only at the level of whole sentences or even entire bodies of discourse, or it may extend down to the level of individual phonemes.[9] In 16a8-13 he distinguishes types of thought and of speech, by reference to whether they involve "combination and division" and consequently bear of truth or falsity, and in 16a13-15 he associates "thoughts without combination or division" with individual words (specifically names and verbs).

Before exploring the nature of these thoughts, it is worth noting how Aristotle's use of the analogy between them and words (and, more generally, between thought and speech) differs from both the way such analogies are often used by contemporary philosophers of mind and to

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[7] On this topic see especially Modrak 2001 and Charles 2000.

[8] Thus Charles (2000, 80-1) reasonably takes "likeness" here to allude to a causal relation between a thought and its object in virtue of which the signification of the thought is fixed.

[9] There is precedent for this last sort of view in the *Cratylus*, where Plato suggests, e.g., that the phoneme "ρ" signifies motion by being somehow *like* motion (426c). Aristotle has already ruled out the second conjunct of this suggestion but not the first.

the use to which I am putting the analogy in my own exegesis. Twentieth Century philosophy, especially in the Anglo-American tradition, was characterized by a preoccupation with language and a discomfort with the mental, which it regarded as occult and unscientific. In this context, which still colors much contemporary literature on the mind, it is natural to seek to explain thought (or to explain it away) by relating it to language. A striking example of this approach is Sellars' "myth of Jones", in which psychological vocabulary is only introduced into a language as part of a theory that there is an internal analog to speech.[10] Something resembling this sort of reasoning can be found in ancient philosophy—for example, in Plato's *Sophist* where "what we call διάνοια" is identified as λόγος that "occurs in the soul in conversation with itself without φωνή" (287e, cf. *Theaetetus* 190a)—, but this is not Aristotle's own approach.[11] Instead, he relies on a prior understanding of thought to illuminate the components of speech. The *De Interpretation*'s account refers *back* to the *De Anima*'s discussion of thought to get purchase on the way in which words are "without combination and division". There is much to be said for Aristotle's approach. Indeed, without some prior understanding of thought, I do not think that it would be possible to attain the sophisticated, self-conscious knowledge of grammar that it is now easy to take for granted when analyzing thought in linguistic terms.[12] However, Aristotle's use

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[10] Sellars 1961b XIV-XV.

[11] Modrak (2003) seems to be of mixed mind as to whether this was Aristotle's approach: she writes, first, that "Aristotle analyses thought on a model that is developed in relation to language" (237) and, later, that "he does not explicate the structure of thought by appealing to that of language" (245-6).

[12] In particular, I think that the concept of "language" itself and all our linguistic knowledge presupposes psychological concepts. Language is sound (or some other suitable perceptible medium) structured so as to be a vehicle for thought and the communication of thoughts, and the concept "language" depends on a recognition of this fact. Of course language's external character makes it easier to study than non-verbalized thought, and the results of this study can shed light on the nature of thought, but I maintain that the study of language depends on prior knowledge about thought and that one could learn nothing of value about language if one regarded it wholly from a third-person perspective as a complex of marks and noises emitted by certain animals interacting in certain circumstances. Much reflection in Anglo-American philosophy, particularly in the 20th Century, was motivated by the premise that such third-personal accounts of language are possible and indeed that they are needed to lend a rigorous, scientific character to talk of the mind (or else to replace it entirely). As far as I know, this premise makes no appearance in Greek thought, which is why I think that reasoning such as that found in the *Sophist* only *resembles* the contemporary approach. It is significant in this connection that Plato analogizes διάνοια to λόγος rather than φωνή, while Aristotle's analogy is between thoughts and φωναί. Where λόγος is ambiguous between speech and thought, applying to anything with a linguistic structure (and even to some things, like ratios, which lack it), φωνή clearly refers to the sounds emitted. The view exemplified by Sellars can be seen as the thesis that λόγος is to be understood on the basis of prior knowledge of φωνή without any psychological knowledge. The *Sophist* passage doesn't commit to any such position. It merely uses knowledge of the type of λόγος that involves φωνή to shed light on a type that does not. The *De Interpretatione* passage is closely related to this part of the *Sophist*, which includes discussion of the names and verbs and (immediately after the portion quoted above) φάσις and ἀπόφασις. Where Plato is neutral, Aristotle effectively comes out against the Sellars-type view by appealing to knowledge of the soul to explain the "things in φωνή" in virtue of which a φωνή can constitute a λόγος.

of the analogy is relevant to our present concerns because of the role it plays in establishing that what Aristotle calls "thoughts without combination or division" or "primary thoughts" are the same things that I, speaking in my own voice, call "concepts". I take this identity to have been established in §2.1, so hereafter I will often substitute "concept" in my exposition for the longer Aristotelian phrases.

3.1.1 Concepts as undivided thoughts

So far we have seen that vocalization primarily symbolizes thought which symbolizes objects and that both vocalization and thought are made up of components. In the case of vocalization, these components are words (nouns and verbs); in the case of thought, they are concepts. The "combination" or "division" of these components gives rise to the alternative between truth and falsity, which does not apply to the components considered individually. Aristotle often distinguishes between concepts and assertions on the grounds that only the latter involve combination and division and so admit of truth or falsity. In addition to *De Interpretatione* I, the distinction can be found in *De Anima* III.6 (430a27-32) and III.8, and I have already mentioned its presence in the *Metaphysics*. Before turning to these texts, however, it is necessary to say something about the language of "combination" (σύνθεσις) and "division" (διαίρεσις), which is used differently in the different treatises.

In the *De Interpretatione* and the *Metaphysics,* combination and "compounding" (συγκεῖσθαι) refer to the act of affirming one term of another. Thus "Man sits" would involve combination, whereas "Man does not sit" would not; rather it would involve division. This terminology is extremely unnatural if one is modeling one's conception of thought on language, because a spoken denial involves no less of a combination of words than does an affirmation, indeed it typically involves at least one additional word. The terminology is natural, however, if one's purpose is to account for truth and falsehood and one thinks of thought primarily in relation to its objects and only secondarily in relation to speech. If each concept stands for an object, then it makes sense to regard an affirmation as uniting the concepts in a manner that purports to correspond to a real union of the objects. The complex thought will be true if the objects are so united, and false otherwise. Since a denial is true precisely when the corresponding affirmation is false, it must represent a separation of the objects and so consist in some sort of

segregation of the corresponding concepts from one another. This use of the terminology of combination and separation is particularly suitable in the *Metaphysics*, where the issue of combination and division arises in connection with the senses of existence and non-existence that correspond to truth and falsehood; for example:

> …existence and non-existence are said with reference to… truth or falsehood, and this applies to the objects by their being compounded or divided, so that while one who deems the divided to be divided and the compounded to be compounded has truth, and one who holds {something} in opposition to the objects has falsehood (Θ.10 10541a34-b5)

> …existence as truth and non-existence as falsehood are dependent on combination and division, and these are about the partitioning of a contradiction, for truth has the affirmation in the case of the compounded and the denial in the case of the divided, whereas falsehood has the contrary of this partition. (E.4 1027b18-22)

We can call the sort of division and combination exhibited by the objects of a denial "existential division" and the sense in which the concepts constituting the denial are divided "representational division", likewise for the corresponding senses of combination.

The *De Anima*'s alternative idiom can be seen clearly at the beginning of III.6, where Aristotle describes the role played by combination and division in truth and falsity:

> The n-thought of undivided things (ἀδιαιρέτων) is amongst those things about which there is not falsehood, while the false and the true are amongst the things in which there is already a sort of combining of n-thoughts as though {they were} one existent—just as Empedocles said "as heads of many sprouted neckless" and were then combined by love, so too these things, having been separate, are combined (e.g., the incommensurable and the diagonal) {…}. For the false is always in a combination; and if <someone says> "White is not white", he combines <white and> "not white"; it is possible to say all these are divisions also. {…} It is νοῦς that makes each {combination} one. (430a26-b6)[13]

Though Aristotle acknowledges the propriety of describing a denial (or perhaps any assertion) as a division, he here prefers to treat it as a combination involving a negative predicate term. This enables him to use divisional language to describe the decomposition of a complex thought like "Man runs" into its components ("man" and "runs"). Let's call division in this sense

[13] The material in angle brackets represent words added by Ross to the manuscript text. As Hamlyn suggests, I think the text can bear the meaning Ross wants without these emendations, though this material has to be supplied in a translation to make it idiomatic. The elided portions of the passage concern the way in which, in past or future tense assertions, time is combined.

"intensional division".[14] Division in this sense applies to objects as well as to thoughts, since the thoughts into which a given thought can be divided will have objects that stand to the initial object as the divided thoughts stand to the initial thought. For example, if the object of the thought "Man runs" is a running man, by dividing it one arrives at separate thoughts whose respective objects are man and running. (However, as we will see in the next section, this sort of division of the objects is something that can only take place in thought.)

Before proceeding, it is necessary to make another terminological point. The words "διαίρετον" and "ἀδιαίρετον" are ambiguous between meaning "divided" and "undivided" on the one hand and "divisible" and "indivisible" on the other. Worse, these are not two fully distinct senses of the term. Rather, something is διαίρετον if it has parts and ἀδιαίρετον if it is unitary.[15] And, of course, there are many respects in which a thing might be said to have parts. There are parts into which the thing has been divided, from which it has been combined, and into which it could be divided, and of course, there are the various sorts of division we've discussed with their corresponding parts. Accordingly I will often leave these terms in the Greek, where there's reason to preserve the ambiguity.

We can see in the present passage that Aristotle thinks that a concept is ἀδιαίρετον insofar as it is not, like an assertion, composed by νοῦς from components into which it can be divided. However, there is a respect in which at least some concepts are intensionally διαίρετα. Immediately after the passage quoted above, Aristotle writes that "the ἀδιαίρετον is twofold: either in potentiality or in actuality", and he illustrates this with the example of a length that can be, but has not yet been, divided. One thinks of the length as ἀδιαίρετον if one thinks of the whole length for the duration of the thought, and one thinks of it as διαίρετον if one successively contemplates the segments into which it could be divided, thus dividing it in thought. Aristotle continues:

> That which is ἀδιαίρετον not quantitatively but in form is n-thought in an undivided time and by an undivided {part} of the soul. (430b14-15)[16]

Clearly we are meant to apply the distinction between actual and potential ἀδιαίρετα to things that are ἀδιαίρετον in form; and, given the context, "ἀδιαίρετον in form" must here mean

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[14] Neither of these senses of "division" should be confused with the taxonomic sense of the term (discussed in §2.2-3) whereby a kind is divided into its forms. We will meet with two additional senses before the end of this chapter.
[15] Thus Ross, in his commentary, recommends "unitary" as a translation for "ἀδιαίρετον" in *De Anima* III.6.
[16] There is some controversy about where exactly these lines belong in the text, but this need not concern us here.

intensionally ἀδιαίρετον. Thus concepts, considered as components of assertions, are ἀδιαίρετον in that they function as units.

Aristotle does think that there are absolutely indivisible concepts, which we will discuss later, but the implication of the present passage is that some concepts can be intensionally divided into components that can be recombined into assertions. There is additional evidence elsewhere in the corpus that this is Aristotle's position.

De Interpretatione 1 tells us that before "goatstag" could assert anything it would have to be combined with "exists"; but when we look to the *Posterior Analytics*, where Aristotle treats existence claims, we find that they do not include "existence" as a term. Consider for example, the following demonstration that ice exists:

> What is ice? Assume that it is solidified water. "Water" is in the C position; "solidified" is in the A position; the middle, "total absence of heat", is the cause in the B position. Now B belongs to C, and "having solidified", which is in the A position, belongs to this. (*Posterior Analytics* II.12 95a16-18)[17]

Here Aristotle recasts the definition of ice as a proposition predicating one element in the definition of the other, and he demonstrates ice's existence by finding a middle term uniting the two elements.[18]

It makes sense that Aristotle should proceed in this way, given the passages we saw earlier from *Metaphysics* E and Θ. If ice is a complex object—an existential combination of water and solidification—then for it to exist is simply for these two components to be combined in the proper way (i.e., in some way analogous to the way in which the concepts "water" and "solidified" are representationally combined in the concept "ice").[19] It remains the case,

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[17] I put the terms of the demonstration in quotes, because it offsets them and makes the grammar of the sentence more perspicuous. I do not mean to claim that the terms are linguistic items rather than ontological or psychological ones. As I discuss in Chapter 2 there is a pervasive and mostly harmless ambiguity in Aristotle's terminology on this point.

[18] That this is intended as a demonstration of ice's existence, is made clear by the context. Aristotle is illustrating the point that "the cause of something's coming about and of its having come about and of its being in the future is the same as {the cause} of its existing" (95a10-11), and immediately after the passage quoted above he writes: "and ice is coming about when B is coming about, and it has come about when it has come about, and will be, if it will be" (95a18-21). What B is the cause of in the present passage, then, is Ice's existence, which Aristotle treats as equivalent to the solidification of water (cf. *Metaphysics* H.2 1042b27, where he also treats these two as equivalent).

[19] Aristotle may be alluding to a point made in *De Interpretatione* 3 16b22-5:

> "Existence and non-existence are not signs of an object; not even if you just say 'what exists.' For, while it isn't anything itself, it denotes (προσσημαίνει) some combination, which cannot be thought without the compounded things".

however, that the concept "ice" is neither true nor false, because, though it does involve a combination of its elements (both representationally and intensionally), it does not *assert* this combination. To assert the combination would be to take the elements, considered as distinct items, and unite them. This would be a mental act analogous to a geometer's joining of two lines (or points).[20] The complex concept by contrast would be analogous to a line, which may once have been formed by uniting smaller lines and could now be divided into them but is presently a continuous whole.

A similar point is made in *Posterior Analytics* I.10, in the course of distinguishing terms from suppositions (ὑποθέσεις):

> Terms are not suppositions (for they're not said to be or not be anything); rather suppositions are {found} among the assertions, while terms only need to be grasped (ξυνίεσθαι), and this is not supposing (unless you'll say that hearing too is a sort of supposing); rather {suppositions are} whatever things {are such that}, when they exist, a conclusion arises by their existing. (76b35-39)[21]

Taken on its own, "ice" or even "solidified water" is not an assertion because it is "not said to be anything". We can see this by considering the case of someone who utters the word "ice" or even the phrase "solidified water". He has not yet asserted anything; rather, as Aristotle writes in a

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He can hardly be unaware of the possibility of such compound concepts in *De Intepretatione* 1, when he uses the example of the goatstag. The word itself ("τραγέλαφος") is compounded from the words for goat (τράγος) and stag (ἐλάφος), and Plato cites the fictitious creature to make the point that artists create things by mingling (μίγνυμι) elements from many sources (*Republic* IV 488a6).

[20] I use "line" here in the Greek sense, to mean what modern geometers call a "line segment".

[21] However, both the text and its interpretation are disputed. In some contexts ὅρος is translated "definition" rather than "term", as I have translated it. Some translators and commentators take it that way here (e.g. Mure 1928). Indeed, as Barnes (1993 142) notes, it would make good sense for Aristotle to be speaking of definitions here. However, if one understands the passage in this way, the parenthetical remark at b35-6 is unintelligible as it stands in the manuscripts: "οὐδὲ γὰρ εἶναι ἢ μὴ λέγονται". This is the text I translated above "for they're not said to be or not be anything". To solve this problem, Ross (1949) emends οὐδὲν for οὐδέ and λέγεται for λέγονται. These emendations would yield: "for they do not say that anything is or is not", which makes sense whether Aristotle is talking about definitions or terms. However, given that we can make sense of the manuscript reading if we take the passage to be about terms, I do not think the emendation is warranted. Indeed, though the discussion of axioms, suppositions, and postulates (αἴτημα) that immediately precedes the quoted passage, makes "definitions" seem like the more likely reading, the wider context supports understanding the passage as about terms. 76b11-22 discusses the things that an ἐπιστήμη is "about". These include the kind and the affections demonstrated of it, both of which are surely terms. Barnes accepts the same reading for different reasons. He thinks that definitions must be assertions, since they constitute a species of thesis; if so, the ὅροι which Aristotle here contrasts with assertions cannot be definitions. I don't find this reasoning persuasive. Aristotle could not allow that a definition is an assertion, at least not without qualification. He often identifies the definition with the definiens which is not an assertion, and treats statements of things' essences as neither true nor false because they don't involve the kind of combination that assertions (normally) do. Stepping back from this particular controversy, I think it is doubtful that the term "ὅρος" in Aristotle really has two fully distinct senses corresponding to our "term" and "definition" anymore than his "εἶδος" has fully distinct senses corresponding to our "form" and "species" (on which issue see above §2.4.5). I suggest a more unitary reading of "ὅρος" below in §4.2 n. 31.

related context, "the speaker stays his διάνοια and the audience pauses".[22] The word or phrase denotes ice considered as a subject of which something can be predicated, and the speaker has not yet predicated anything of it. This remains the case even though the thought of ice, which is here functioning as a prospective subject, can be analyzed into other concepts that can be recombined to assert ice's existence. Moreover, it is no problem for this view if there are concepts, such as "goatstag", which have no objects because they representationally combine elements that are not existentially combined. In such a case, any assertion made by recombining the constituents into which the concept can be intensionally divided would be false, and the concept itself might be said to have some property analogous to falsity, but it will not be false because it does not itself make any claims.[23]

A concept, then, is an intensionally undivided thought, but it need not be an indivisible one. Since "ice" (probably even if articulated into "solidified water") is undivided in the relevant way, it is worth remembering a point made in §2.1.1, that not just any phrase that grammatically qualifies to be the subject or predicate of a sentence qualifies as a concept for Aristotle; rather an Aristotelian term must be "one" in a way that "white man" or "man and horse" is not (and would not be even if a single word were introduced to stand for it). We have discussed the type of unity necessary for a concept at some length in Chapter 2; for the moment, it is sufficient to recall that

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[22] *De Interpretatione* 3 16b20-21.

[23] This point suggests a possible resolution to the tension, noted in n. 6, between *De Anima* III.3's statement that φαντασίαι can be false and III.8's position that, unlike φάσεις and ἀποφάσεις, φαντασίαι cannot be true or false since they are not συμπλοκαί of νοήματα. A φαντασία is a picturing of something, which may be complex or simple; if it is complex, it may not exist (though its ultimate constituents must). In this sense a φαντασία might be said to be false, as a complex concept could also be, but this is not Aristotle's normal sense of "false", nor is it ours. In this specialized sense, for example, works of fiction would be false, whereas we normally do not take the alternative of truth or falsity to apply to them. As a sort of picturing, a φαντασία cannot do what φάσεις do and concepts do not: it cannot consider two objects separately and then predicate one of the other. One can picture a red chair, but not the *belonging of the redness to the chair*. In the context of III.3, Aristotle is differentiating φαντασία from perception and related states on the ground that, while perception is always of what is, φαντασία may represent things that are not. In such contexts he's happy to describe perception as true and φαντασία as (often) false, but in so doing he uses the terms more loosely than he does in III.8 and in *De Interpretatione*. In III.3 the alternative between truth and falsehood is between contents that do and do not correspond to reality, regardless of whether the contents are in any way aimed at such correspondence. Thus, when Aristotle says that most φαντασίαι are false, he is not saying that they represent any sort of failure. They may in some cases—for example, if a seagull drops a crab, visualizing it cracking open on the rocks below, but instead it lands safely in the sea; in such a case, something has gone wrong. By contrast, nothing has gone wrong when someone engages in fantasy without supposing that the fantasy corresponds to reality. It is clear that Aristotle means to include such cases as φαντασίαι in III.8, for he writes that φαντασία is "up to us when we wish" whereas δόχα is not because "it must either have truth or falsehood" (427b17-24). Aristotle's point about the non-voluntary character of δόχα cannot be that the possession of a truth or falsity eliminates δόχα from being up to us (since he has just told us that φαντασίαι can be false); rather it must be the point associated with Bernard Williams (1973 136-51) that one cannot believe something at will because doing so would entail a sort of indifference to truth or falsity which is incompatible with belief.

Aristotle recognizes concepts for forms, kinds, successions, focal unities, and perhaps groups of analogs, and that concepts are usually symbolized by single words while other thoughts are usually not.

3.1.2 The Composition of thoughts and their objects

Some of the passages we looked at may create the impression that complex objects are composed of their constituents in something like the way that a house is composed of bricks and timbers, with each of the constituents existing independently of the others. Accordingly, a complex thought would be a concept if it was already put together out of the simpler thoughts, and an assertion would be a process in which the simpler thoughts are combined to form more complex ones. This impression is especially pronounced in the passages that employ the representational and existential senses of "division", such as the one in *Metaphysics* Θ.10.

Suppose this impression represents Aristotle's view. Now, if "biped animal" is the definition of "man", then the object(s) of this concept would have to be made of two distinct existents, corresponding to the concepts "biped" and "animal" which are independent of one another as each timber of a house is independent of the next. But in Chapter 2 we saw Aristotle deny just this. Moreover, the most emphatic denials were found in the central books of the *Metaphysics*, where we also find the existential sense of "division" employed. Because of the proximity of the passages within a single treatise, a developmental explanation of the discrepancy would be implausible, and the incompatibility is too obvious for Aristotle to have missed. There is, then, every reason to resist the impression created by Θ.10 and allied texts, and it is not difficult to do so if one takes them in the context of H.6, where Aristotle comes out most clearly against the view in question. The chapter is one of the highpoints of the corpus, and I quote it in full, except for 1045a36-b7, which we will come to later:

> Concerning the puzzle that's been stated about definitions and about numbers: what's the cause of their being one? For of all things—whatever has many parts and the entirety isn't e.g. a heap, but rather is some whole besides the parts—there is some cause; since even among bodies, in some contact is the cause of their being one, in others stickiness or some other such affect. A definition is one account not by conjunction like the Iliad, but rather by being of one thing. So, what is it which makes man one, and why one rather than many (e.g. both animal

> and biped) especially if, as some claim, there is some animal itself and biped itself? For why isn't man those things themselves, and men will exist in respect of participation not in man nor one thing, but rather in two: animal and biped, and generally man would not be one but rather many: animal and biped? (1045a7-20)
>
> It's evident that for those who pursue defining and speaking as they're accustomed, it is not possible to respond and solve the puzzle; but if, as we say, it is on the one hand matter and on the other shape, and the former potentially but the latter actually, what's sought would no longer seem a puzzle. For it's the same puzzle if the definition (ὅρος) of cloak were rounded bronze; for this name would signify the account, so that what's sought would be some cause of the rounded and the bronze's being one. It's indeed apparent that it's no longer a puzzle, since the one is matter and the other shape. (1045a20-29)
>
> Then what's the cause of this, of what exists potentially existing actually, besides the creator in whichever cases there is coming to be? For there's no other cause of the potential sphere actually being a sphere, but rather this was what it is for each of the two to be what it was. One {sort} of matter is intelligible, the other is perceptible, and always one {part} of the account is matter and the other actuality—e.g. circle: plane figure. (1045a29-35)
>
> It's due to this puzzle that some speak of "participation" and puzzle over what the cause of participation is and what it is to participate, while others {speak of} a "communion", as Lycophron claims there is of e-knowledge and soul, and others {claim} that life is a combination or conjunction of soul and body. Further, the same account applies to all, for even being healthy will be either a communion or conjunction or combination of soul and health, and the bronze being a triangle {will be} a combination of bronze and triangle, and being white, a combination of surface and whiteness. The cause is that they seek a one-making account and a difference for potentiality and finality. But, as has been stated, the last matter and the form are the one and the same, {the former potentially}, the latter actually, so that seeking some cause of oneness and {seeking a cause} for existence are alike; for each thing is a certain one, and potentiality and actuality are one in a way, so that there's no other cause except the thing, if any, that moved {it} from potentiality into actuality. But whatever things do not have matter, all are *simpliciter* just a certain one. (1045b7-b23)

From 1045a29-35 it is as clear as can be that that Aristotle does not regard matter and form as independent components like the timbers of a house. Rather each is implicated in the very being of the other. The matter of an object is that object insofar as it is able to be what it is, and the form is that same object insofar as it is what it is able to be. Since Aristotle regularly speaks of things being compounds or composites or combinations of form and matter, we have to construe this sort of language broadly enough to embrace the unique hylomorphic relationship.

In 1045a20-29 Aristotle makes it clear that he thinks the components of a definition stand to one another as matter and form and that he regards this as of the utmost importance.

1045b7-b23 applies the same analysis to the objects of assertions, e.g. to a man's being healthy. Aristotle pillories views that posit any *relationship* between the man and health of the sort that holds between timbers in virtue of which they constitute a house. Rather part of what it is to be a man (or any organism) is to be matter for health, which is just a certain actualization of a certain potential of men (or of organisms generally). More generally, to be an οὐσία is in part to be a subject in which existents in other categories are actualized, and to be an existent in another category is to be an actuality of certain potentialities of certain οὐσίαι.

Indeed, as of the *Categories*, predication is never a relationship between independent existents on an ontological par—things that might be combined as timbers are to produce a house. The predicate is either "in" or "said of" the subject. In the former case, the predicate is a non-οὐσία, incapable of existing except as a characteristic of a subject, in the latter it is a form or kind (either a secondary οὐσία or an analogous member some other category), in which case also its existence is derivative on the existents it characterizes, and ultimately on primary οὐσίαι, like "this man" or "this horse". On whatever points the *Metaphysics* may depart from the *Categories* (and I think these are fewer than is often supposed), there is no sign that Aristotle wants to level the ontological playing field. What *Metaphysics* H.6 offers is a more sophisticated account of the relationship whereby a predicate is "in" the subject. This issue and the unity of definitions issue are one, since a definition can always be reconfigured into an assertion that the differentia is "in" the genus.[24]

Moreover, if, as I argued in §2.4, the genus exists only as matter or potentiality, and in particular if it exists as a potentiality of the object *relative to thought*, then there will be no such thing as the *existential* combination and division that Aristotle seems to envision in Θ.10. Or rather there will be such combination and division only insofar as the objects involved are considered in relation to thought. This is just the position Aristotle takes in E.4:

> Falsehood and truth are not in the objects (e.g., the good being true while the bad is straightaway false), but rather in διάνοια {…}But since there is complexity and division in διάνοία rather than in the objects, and this sort of existence {viz.

[24] Recall however that not all predications can be reconfigured into definitions. As we have seen, Aristotle insists that that there is no definition "white man" corresponding to the assertion "Man is white", and we learned the reason for this in §2.3. Man is not strictly speaking matter for whiteness because whiteness isn't a determination of man as a whole but only of the attribute of color in isolation.

> existence as truth} is different from {existence} speaking strictly (for the διάνοία connects (συνάπτει) or subtracts (ἀφαιρεῖ) either what something is or that {it's} qualified or that {it's} quantified), one must put aside existence… as truth; for… its cause is a certain affection of thought, and… {it depends on} the remaining kind of existence… (1027b25-a2)

This claim that existence in the sense of truth is caused by an affection of thought might make E.4 seem to endorse a wholly different position from Θ.10. After all, the later chapter insists that

> it's not due to our truly deeming you to be white that you're white, but rather due to your being white that we, in claiming this, have the truth. (1051b6-9)

But E.4's claim does not contradict this point from Θ.10, and Θ.10's language of existential combination and division can be read in light of E.4 and H.6.

E.4 does not say that our truly thinking that a man is white is the cause of his being white. What it says is that composition and division, understood as processes of διάνοία, give rise to the alternative between truth and falsity. Independent of διάνοια, there are not two items, the man and his whiteness, between which a relation of combination or division might obtain; there is only the white man. It is through the advent of διάνοια that there come to be such distinct units as man-considered-without-regard-for-color and whiteness. Once διάνοια has come on the scene, the original white man remains as he was. What διάνοια introduces is a perspective from which he can now be considered as a combination of man and whiteness—the perspective of a mind stocked with concepts for subjects and attributes in terms of which it cognizes the world. From this perspective, which is the one we normally take on the world, and which Aristotle takes in Θ.10, combinations like "white man" represent combinations in the world (or, in the case of falsehoods, fail to represent them). From the more external perspective of E.4, the combinations still represent a grasp of the way the world is but that way is not fundamentally to be described in terms of combination and division. According to E.4, the existence of a white man or of ice consists in the combination of man and white or of water and solidification, but only in a derivative sense of existence. Discussion of existence in this sense must be postponed until the end of Θ, at which point it can be understood in light of H.6's recasting of predication in terms of matter and form and potentiality and actuality (and in light of Θ's account of potentiality and actuality).

Moreover, although E.4 tells us that διάνοια is responsible for the combination and division, it does not say that an object can be thought in any way one pleases—for example, that there is nothing to prevent a green emerald from being thought as grue rather than green. There may be facts about thought as such or about the objects that prohibit this, and it is clear that Aristotle thinks there are such facts, or else he could not deny that, even if they are given a single name, putative terms like "man and horse" (or, by extension, "grue") fail to signify one thing. If διάνοια achieves a conceptual perspective by performing divisions, it is not free to divide the world in any way it pleases. Its divisions must somehow demarcate thinkable objects each of which has the unity that we've seen (in §2.1.1) is required to function as a predication. Though there is some sense in which such an object owes its separateness to διάνοια, there must be an ontological basis for its coherence and to the divisibility of the whole comprising it. We encountered this basis in Chapter 2 in the form of the doctrine of intelligible matter, and I will have more to say about it in Chapter 4 in connection with the norms it gives rise to for conceptualizing a domain.

3.1.3 Indivisible thoughts

We observed earlier that a concept, though undivided, need not be indivisible. "Ice", for example, is divisible into "water" and "solidified" and man (for the sake of argument) into "animal" and "bipedal". In both cases, the two terms are not related as independent existents, but rather as matter to form. There are however, thoughts that are not only undivided but indivisible. This is clear in many of the same chapters that we've considered already in connection with the respects in which both thoughts and their objects can be combined and divided.

In *De Anima* III.6 (shortly after the passage we discussed earlier about the differing respects in which a line and the thought of it are διαίρετον and ἀδιαίρετον) Aristotle writes:

> The point and every division, and what's ἀδιαίρετον in this way, is revealed just as the privation {is}. And the same account applies to the rest, e.g. how one gets to g-know evil or black; for one gets to g-know them in a way by their contraries. What gets to g-know must be potentially {what it gets to g-know } [and {it} must be in this]. But if there is anything [of the causes] that doesn't have a contrary, this will g-know itself and is an actuality and separate. (430b20-26)

There are a number of noteworthy things about this passage, some immediately relevant to our present concerns and others that we will return for in §3.2.2. It is best to at least mention all of these points now.

Since lines have just served as the paradigm of things that are only potentially διαίρετον, the transition to talk of points and similarly ἀδιαίρετον things is a transition to the topic of indivisibility. And, since the discussion of the ways in which lines are and are not ἀδιαίρετον was supposed to apply also to things that are ἀδιαίρετον in form (i.e., intensionally ἀδιαίρετον), the present remarks about how ἀδιαίρετα are known must also be meant to apply to these objects.

We might wonder why Aristotle feels a need to give a special account of how indivisible things are known. He has not yet spoken specifically about how divisible things are known nor does he go on to do so. There seems to be some presumption at work to the effect that the ability of something to be known depends on its ability to be divided, so that Aristotle has to go out of his way to explain how it is that indivisibles can be known. We will discuss why this is in §3.2. For now, our focus is on the claim that there are indivisible thoughts of indivisible objects.

What would an indivisible thought or object in this sense be? We have seen that divisible concepts are divided into concepts that can then be recombined to form an assertion, and that assertions have a subject predicate structure which Aristotle understands in terms of the relation between matter and form. An indivisible thought, then, would be one whose object cannot be analyzed into matter and form or subject and predicate.[25] And we can see that this is the case in the lines that immediately follow those quoted above:

> While a claim (φάσις) is "something of something", just as an affirmation (κατάφασις) also is,[26] and all {claims} are true or false, not every thought is {this

[25] It is also worth noting, though I will not pursue this issue here, that nothing Aristotle says here commits him to the view that indivisible thoughts ever occur in isolation as episodes of thinking. Wedin (1988 128-32) is likely right that they only occur in actual thinking as components of complex thoughts. These complex occurent thoughts, however, are combinations of simpler thoughts and are exercises of (perhaps amongst other things) acquired potentialities corresponding to these simpler thoughts. It is these simpler thoughts in potentiality that I have been calling "concepts".

[26] Torstrik replaces the manuscripts' "φάσις" and "κατάφασις" with "κατάφασις" and "ἀπόφασις", respectively. Ross accepts the second of these emendations while rejecting the first. His apparatus and commentary give no basis for either of these emendations, and both his reading and Torstrik's seem inferior to the manuscript reading. It is an affirmation (κατάφασις) that is paradigmatically "something of something", so "κατάφασις" makes good sense in the "ὥσπερ" clause. Granted, the "και" in that clause is awkward, but not terribly so. "Φάσις" is more general than "κατάφασις" insofar as it subsumes affirmations and denials, and so the sentence as written makes sense. The point is that all claims, not just affirmations, claim "something of something". My only hesitation is that it is not clear that Aristotle does think this about all φάσεις. *Metaphysics* Θ.10 1051b24-5 may imply the contrary in its contrast between φάσις and ἀπόφανσις (see discussion below). If this is right, Aristotle should use "ἀπόφανσις" in the present passage. Still, it is not unusual for Aristotle to ignore in one work a fine distinction drawn in another.

> way}. Rather, the {thought} of what something is with respect to its being what it is (ὁ τοῦ τί ἐστι κατὰ τὸ τί ἦν εἶναι) is true, and it's not "something of something". Rather, as the sight of the [distinctive] object is true, though whether it's a <white> man or not is not always true, so it holds with whatever things lack matter. (430b26-30)

This passage too raises questions that we will have to postpone. Most notably: how can an indivisible thought be true if the alternative between truth and falsity arises from the combination of thoughts and their objects? We will address this question in §3.2.2. I quote the passage here only to confirm that an indivisible thought would lack subject-predicate structure—that it would not be "something of something". We are told that a thought of τί ἐστι κατὰ τὸ τί ἦν εἶναι qualifies as indivisible in this way, and Aristotle seems to regard this as the least controversial case of simple thought, but there is a simpler example that it is worth our taking up before it. We can see this in *Metaphysics* H.6, where Aristotle mentions objects that lack even the intelligible matter that makes possible definition and predication:

> Whatever doesn't have matter, neither intelligible nor perceptible, is straightaway just a certain one, just as it is also just some existent: τὸ τόδε, τὸ ποιόν, τὸ ποσόν (that's also why neither existence nor one inheres in their definitions), and its being what it is (τί ἦν εἶναι) is straightaway a certain one, just as it is a certain existent; that's also why there is not any other cause for any of their being one nor {for any of their} being a certain existent; for each is straightaway (εὐθύς) a certain existent and a certain one (not as in the kind existent and one, nor as being separate, besides the particulars). (1045a36-b7)

I take it that "τὸ τόδε", "τὸ ποιόν", and "τὸ ποσόν" here refer, respectively, to the categories of οὐσία, quality and quantity—to the highest kinds, rather than to their individual members. As *highest* kinds, they cannot be analyzed into kind and difference, and this is what it means for them to lack even intelligible matter. An intelligible matter for these kinds would be a determinable kind of which each category is a determination, and there is no such kind.[27] Each category is a being and a one, without having being or one as its kind—i.e., as a determinable of which it is a determinate. The categories are not the only things that entirely lack matter. Presumably, the (perceptible) matter from which the elements are made is this way as well, as it

[27] It might seem counterintuitive to say that these highest determinables lack intelligible matter, since to be matter is precisely to be determinable. But that's just the point: relative to its various determinates, a category is matter—it is the intelligible matter that the determinate has. What the category lacks, in not having matter, is anything that stands to *it* as it stands to its determinates. In this respect it is pure actuality. There is no such thing as being potentially the category of quality.

seems is Aristotle's God. However, the categories are the example given here, and I think they are the clearest case.[28]

With an example of an indivisible object now in hand, let's consider some of what *De Anima* III.6 has to say about how such objects are known or thought. Recall that it says that they are

> revealed (δηλοῦτι) just as the privation {is}. And the same account applies to the rest (e.g., how one gets to g-know evil or black); for one gets to g-know them in a way by their contraries. (430b21-3)

The contraries in question must not be contrary to the indivisible itself as white is contrary to black. Only a member of a kind can have a contrary at all, and kind-members are intensionally divisible (into kind and difference). Since a category has no kind, it cannot have a contrary by contrast with which it might be known. This same argument would apply to any other sorts of indivisibles there may be (e.g., to the matter that underlies the four elements). Thus the contraries by which an indivisible is revealed can be contrary to the indivisible only in this sense: that they are divisible in just the way the indivisible is not. The message of this passage, then, is that an indivisible thing (e.g., the category οὐσία) is revealed by contrast with the things by dividing which we arrive at it (e.g., by contrast with the various οὐσίαι whose kind it is).[29]

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[28] Modrak (2001 64) takes an opposite reading on which the uncuttable forms are the indivisible objects of thought. But, uncuttable forms are indivisible only taxonomically (i.e. they cannot be subdivided into species), they are a paradigm case of things that can be intensionally divided (into kind and difference). In support of her view she cites *Metaphysics* Z.4 1030a7-17, where Aristotle says (amongst other things) that there is definition only of the forms of a kind because only these do not involve one thing's being said of another. Presumably she takes this to mean that these objects are therefore not intensionally divisible. This doesn't follow. All the passage prohibits is a definition in which one thing is said of another (and at 1030a18ff it even allows this for non-οὐσίαι). But the items (kind and difference or matter and form or subject and predicate) into which a form is divided are not *one thing and another* but the same thing in potentiality and actuality. This is the lesson of H.6. It is not mentioned in Z.4 because Z is preliminary and aporetic, advancing positions only tentatively which will be rejected or qualified later. In any event there is nothing in Z.4 to indicate that by "form of a kind" Aristotle means only the uncuttable forms.

[29] A more general version of this same idea can be found (though in significantly different terms) in *Metaphysics* I.8:

> This, then, is the meaning of calling things other in form—that they are contrary, being in the same kind and being indivisible (and those things are the same in form, which have no contrariety, being indivisible); for in the process of division contrarieties arise even in the intermediate stages before we come to the indivisibles. Evidently, therefore, with reference to that which is called the kind, none of the forms which belong to the kind is either the same as or other than it in form (rightly so, for the matter is revealed by negation, and the kind is the matter of that of which it is called the kind, not as in [the kind] of the Heraclidae, but as the {kind} in nature), nor is it so with reference to things which are not in the same kind, but it will differ in kind from them and in form from things in the same kind. For the difference between things which differ in form must be a contrariety; and this belongs only to things in the same kind. (1058a16-28)

Here the divisional language is used in connection with the taxonomic division by which one moves from a kind to its forms. The kind, because it is matter, is revealed by negation. The talk of multiple stages to the division, suggests

Aristotle goes on to tell us that any indivisible that "doesn't have a contrary" "will g-know itself and is an actuality and separate" (430b24-6).[30] Such an indivisible would be something that can neither be divided nor discovered as a result of divisions of other things. Thus it makes sense to say that it would have to be separate. The remark is surely an allusion to the God about which Aristotle tells us so little.

Let us now consider the example present in the passage's own example of a thought that isn't "something of something"—namely, the thought of "τί ἐστι κατὰ τὸ τί ἦν εἶναι" (430b28). I take it that the point of this complex phrase is to distinguish between two things that might be meant by the phrase "the thought of what something is (τοῦ τί ἐστι)". It might mean, e.g., to think about some ice cube that it is ice; or it might mean to think about ice as such that it is solidified water. Similarly if Aristotle had spoken simply of the τί ἦν εἶναι, he might not have been referring to the τί ἦν εἶναι in relation to the object whose τί ἦν εἶναι it is. There is, after all, a respect in which ice's τί ἦν εἶναι can be divided. For ice to exist is for water to be solidified, and so its being can be divided into water and solidification, as we saw earlier. What is indivisible is the connection between ice and solidified water. While the thought "solidified water" may be broken down into "water" and "solidification", "ice is solidified water" cannot be broken down into "ice" and "solidified water", because ice and solidified water are not two distinct things, even in thought.[31]

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that one could, when proceeding in the opposite direction, get to know a kind as a kind by contrast with its various forms. It is that which can be (in thought), but is not yet, any of the forms. One might then come to see this same kind as a form relative to a higher kind, at which point one will then know it by a taxonomic division of the higher kind (i.e., an intensional combination of that kind with a difference).

[30] The context makes it clear that he is still talking about indivisibles. Ross' text reads "εἰ δέ τινι μηδὲν ἔστιν ἐναντίον [τῶν αἰτίων], αὐτὸ ἑαυτὸ γινώσκει καὶ ἐνέργειά ἐστι καὶ χωριστόν". The "τῶν αἰτίων", which Ross brackets, is controversial, though it is in almost all the manuscripts, because it seems out of place here, since Aristotle has not been speaking of causes *per se*. However, since (as we will see later) indivisibles are causes, the manuscript reading makes sense. And there is a reason why Aristotle might wish here to mention that the objects in question are causes. One of the aims of III.4-8 is to explain how thought comes about at all. Aristotle's answer involves the reception of form in perception. This makes it puzzling how something that is entirely separate from perceptible things can be known. (Thus the remark at the end of III.7 that "whether or not it's possible to think some of the separate things, {when} one is not oneself separate from spatial-magnitude must be considered later" [431b17-19]—a later that never comes.) Plausibly our cognitive access to these objects is by inference from their effects on perceptible things. This is in fact how Aristotle reasons about God in *Metaphysics* Λ. Thus the point that separate indivisible objects are causes would not be out of place in the present discussion, and, though Aristotle does not develop it here, he may be alluding to what seems to be his own solution to the question raised at the end of the following chapter.

[31] In effect, I am agreeing with Sorabji (1982 298) that definitions do not require predication of one thing of another because they are statements of identity.

If the preceding is correct, then "τί ἐστι κατὰ τὸ τί ἦν εἶναι" in the present passage means something that in other contexts Aristotle may be content to express by either "τί ἐστι" or "τί ἦν εἶναι". One such context is Metaphysics Θ.10, where Aristotle discusses the specialized way in which the alternatives between truth and falsity and existence and non-existence apply to uncombined things.

> In the case of an uncombined thing, what are existence and non-existence and truth and falsehood? For it's not a combination so as to exist when compounded and not to exist if it's divided, as it is with the white wood or the diagonal being commensurate; nor will truth and falsehood still belong in the same way as they apply also in those cases. Instead, just as truth is not the same in these cases, so existing is not {the same}. Rather, truth and falsehood are {as follows}: truth is touching (θιγεῖν) and claiming (φάναι) (for an affirmation (κατάφασις) and a claim (φάσις) are not the same), while falsehood is being g-ignorant and not touching. For there is no erring about what something is (τὸ τί ἐστιν), except incidentally; likewise also in the case of the οὐσίαι that aren't combined (for there's no erring, and everything is actually, not potentially (for {otherwise} they would have come to be or passed away, but in fact it neither comes to be nor passes away, for {if it did} it would have come to be from something). In the cases of whatever is just what something is and an actuality there is no erring; rather either one thinks or one does not. However, about these things, one can seek what they are and whether they are this way or not. (1051b17-33)

In §3.2.3, we will take up the sense of truth and falsehood discussed here and the topic of why there can be no error about the uncombined things. I quote the passage here because we can see from it that there are two types of uncombined thing: τὸ τί ἐστιν and uncombined οὐσίαι. These must be distinct cases because, having made the point that error is impossible about the former, he goes on to say that it is likewise impossible about the latter. I take it that "τί ἐστιν" here refers to what *De Anima* III.6 calls "τί ἐστι κατὰ τὸ τί ἦν εἶναι". Recall that "uncombined" in *Metaphysics* Θ.10 means not combined existentially, whereas "indivisible" in *De Anima* III.6 means intensionally undivided, and existentially uncombined things are intensionally indivisible. Notice also that both texts speak of there being truth but no falsehood about the objects in question. Θ.10 takes this as the more familiar case of thing about which there can be no error. Aristotle leads us from it to the case of the uncombined οὐσίαι. I take it that these οὐσίαι are the same as the things that *Metaphysics* H.6's tells us lack even intellectual matter—e.g., the categories. Notice that both texts identify their objects as lacking any matter or potentiality.

Thus there are two sorts of indivisible thoughts: thoughts of what things are and apprehensions of indivisible objects. Some indivisible objects (such as the highest kinds and

probably the ultimate physical matter) are apprehended through divisions of perceptible things, while others (like gods) are entirely separate from perceptible things and apprehended in some other way.

In §3.2.3, we will see that these indivisible thoughts constitute the sort of γνῶσις that Aristotle calls νοῦς and thinks is the principle of ἐπιστήμη (*Posterior Analytics* II.19 100b5-17). We have much ground to cover, however, before we will be in a position even to make sense of this claim, for indeed there is a seeming incoherence in what we have said already. We began §3.1 by identifying undivided thoughts, and *a fortiori* indivisible thoughts, with concepts, but of the two sorts of indivisible thoughts we have identified in this section, neither seems like it could be a concept. An indivisible thought consists either in thinking of an object that it is what it is or in apprehending an indivisible object. In either case it is not clear how the thoughts could be terms in a proposition, whereas we earlier identified concepts with such terms. The indivisible thoughts cannot be predications because they do not "say something of something". The plot thickens when we notice that *Metaphysics* Θ.10 describes both indivisible thoughts and predications as claims (φάσεις) and informs us that the alternative of truth or falsity does somehow apply to them. This alternative is not normally thought to apply to concepts, and Aristotle tells us in the passages we looked at in §3.1.1 that it does not apply to thoughts without division or combination. In order to resolve these tensions, and for other reasons as well, we need to turn to Aristotle's view of knowledge—that is, of γνῶσις.

3.2 ΓΝΩΣΙΣ AND INDIVISIBLE THOUGHTS

3.2.1 Γνῶσις

"Γνῶσις" is the term in Aristotle's vocabulary closest to the normal English usage of "knowledge". The most significant points of departure are that Aristotle speaks of γνώσεις, whereas we use "knowledge" as a mass noun and so would have to speak of "items of knowledge", and he speaks of γνῶσις as coming in degrees in a way that may strike English speakers as counterintuitive. The first of these differences is unimportant, and I'll come to the idea of degrees of γνῶσις in §3.3.3. For the present, I'd like to contrast Aristotle's "γνῶσις" to

"knowledge" as used not in ordinary English but in the dominant tradition in Anglo-American epistemology since the middle of the Twentieth Century. This tradition concerns itself almost exclusively with propositional knowledge, which it understands as a species of belief distinguished from other species by being true and justified, and perhaps by the possession of other features as well.[32] By contrast, γνώσεις needn't be beliefs at all, for Aristotle speaks more than once of perception, which he does not think involves belief, "a sort of γνῶσις",[33] and he sometimes uses the term for acquaintance with people or objects, which also presumably need not be constituted by beliefs.[34]

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[32] There are strong reasons to reject this view of knowledge, which have been garnering more attention recently. First, the account of knowledge as a species of belief, though it makes sense for propositional knowledge, does not seem to be applicable to other states that are normally described as knowledge, but which do not seem to have propositional contents (e.g. , knowledge of people, places, things, skills, etc.), and it is reasonable to expect a unifying account of these phenomena. This criticism is put forth by McGinn (1984), who argues in favor of a general account of knowledge in terms of an ability to discriminate, and propositional knowledge in terms of an ability to discriminate between true and false propositions. On this view, propositional knowledge will, of course, involve belief, but it will not be a species of it. I think there is much truth in McGinn's general analysis, and his general conception of knowledge is clearly much closer to Aristotle's conception of γνῶσις than is that of more conventional 20th Century epistemologists. Note that Aristotle speaks of perception as a "δύναμις σύμφυτον κριτική" (*Posterior Analytics* II.19 99b35). I find McGinn's specific analysis of propositional knowledge less persuasive, and the distance between modern conceptions of propositions and Aristotle's own, make it difficult to compare McGinn and Aristotle on this point. A second line of argument against defining knowledge as a species of belief is most associated with Williamson (2000), who argues that the concept "knowledge" is logically prior to "belief" (and to several of the other concepts in terms of which it is traditionally defined). Williamson's book has done a great deal to displace what had become a dogma of contemporary epistemology. Guttenplan (1994, see especially pp. 296-300) proposed a similar view of the relation between knowledge and belief, and argued that this understanding of the relationship (especially when paired with a suitably broad conception of knowledge), helps to solve some paradoxes concerning propositional attidudes. For an earlier 20th Century account of "knowledge" that construes the term as having similar breadth, see Wilson 1926 34-47.

[33] *Generation of Animals* II.23 731a33-4, *Protrepticus* 76. See also *Posterior Analytics* II.19 99b37-98a1, where we're told that animals that lack λόγος do not have "γνῶσις outside of perception", thus indicating that in perception they do have γνῶσις. And, in *On Dreams* 1, Aristotle writes of the αἰσθητικόν and νοητικόν: "τούτοις γὰρ μόνοις τῶν ἐν ἡμῖν γνωρίζομέν τι" (458b2-3). That perception does not involve belief is clear from *De Anima* III.3, 428a19-4, where we are told that δόξα requires λόγος which most animals lack. It might be thought that the reason Aristotle is comfortable thinking of perception as a type of "knowledge", though it is not a belief, is that he thinks that perceptual content, like the contents of beliefs have "propositional structure". At best this interpretation is extremely misleading. It is true that Aristotle does not think there is the sort of disconnect between perceptual and propositional contents that is common on many contemporary views, but this is not because he assimilates the content of perception to propositions, quite the reverse. He uses his understanding of perception to shed light on the structure of thought or language as often as he reasons in the other direction. He thinks of both propositions and complex perceptual states as "combinations" of simpler states, and he thinks of their objects as combinations of simpler objects. In general a γνῶσις is an apprehension or awareness of an object, which may be simple or complex. By contrast, contemporary philosophers who ascribe propositional form to perception do so in order to give perception conceptual content.

[34] E.g. at *Politics* V.11 1313b5. Interestingly, Grote (1865, 60), when he first introduced the distinction between "knowledge of acquaintance" and "knowledge of description", cited the difference between "γνῶναι" and "εἰδέναι" as an example of the distinction in natural language. (His other examples were *noscere*/*scire*, *kennin*/*wissen*, and *connaître*/*savoir* in Latin, German, and French respectively.) Since some later inheritors of this distinction proceed as though it is a mere accident that English uses a single word "knowledge" where these other languages have two, it

Interestingly, γνῶσις itself never comes in for sustained discussion in the corpus; indeed it is overlooked in a number of places where we might expect to see it discussed. Most notably there is no chapter on it in *Nicomachean Ethics* VI, and it is absent from VI.6's list of states by which "we have truth and cannot be deceived".[35] It is absent also from *Posterior Analytics* I.33's list of states that can be true, which includes only "νοῦς, ἐπιστήμη and δόξα and what's called after them" (88b37-a2).[36] However, there can be no doubt that γνῶσις is distinct from these other states. Since it includes ἐπιστήμη and νοῦς, it can't be identical to either, and they cannot jointly exhaust it, because it also includes perception and perhaps other states as well.[37] Nor can it be identical to δόξα, which does not include perception, ἐπιστήμη, or νοῦς.[38] More importantly, unlike δόξα, γνώσεις must be true. This is clear from I.2, were ἐπίστασθαι is defined in terms of the possession of γνῶσις of its object's necessitating cause, and we're told that it is possible to think that one has such γνῶσις when one does not (71a10-17).

The likely reason for γνῶσις's absence from at least *Nicomachean Ethics* VI's list is that that book is concerned specifically with the virtues of the part of the soul that has λόγος. Γνῶσις, which includes perception, cannot belong *per se* to this part of the soul.[39] Like "virtue", it denotes something that can belong to either the perceptual or intellectual parts of the soul; and,

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is worth pointing out that the Greek words also span the distinction. Aristotle uses "γνῶναι" for propositional knowledge in *Posterior Analytics* II.1 (89b38, 90a8), and he uses εἰδέναι for both sorts of knowledge in *Posterior Analytics* I.24 (85a21-31, other uses of εἰδέναι for knowledge by acquaintance can be found at 87b40, 97a7-18, and *Rhetoric* I.2 1355b8.) (It is worth observing also, in this connection, that other English knowledge verbs like "aware", can take objects or propositions as their grammatical objects.) Because Grote himself took the distinction to be more fluid, with the two sorts of knowledge differing from one another in degree along several axes, his view is not necessarily contradicted by Aristotle's usage. Aristotle is happy to pair any of his knowledge verbs with either a proposition or an object as its grammatical object. Indeed, as we've seen, he takes knowledge that (e.g.) water is solidified to be equivalent to knowledge of solidified water.

[35] The word appears only once in VI at 1141b34, were we're told that γνῶσις of what's good for oneself is part of φρόνησις.

[36] He goes on, in that chapter to use the verb εἰδέναι and its derivatives as though it were equivalent to ἐπίστασθαι (89a11-15), but no form of γνῶσις appears. The taxonomy here may be compared with one in *De Anima* III.3, where "ἐπιστήμη, δόξα, and φρόνησις and their opposites" are given as varieties of ὑπόληψις (427b24-6). This is no a a slight, however, to γνῶσις, because γνῶσις extends more widely than ὑπόληψις, in that it includes perception (*Posterior Analtytics* II.19 99b38-9, cf. *Metaphysics* A.1 980a26-7), whereas ὑπόληψις is a variety of νόησις (*De Anima* 427b27-9) and requires λόγος (427b8-15).

[37] See the two previous notes for references to perception and (part of) φρόνησις as γνώσεις. In *Metaphysics* A.1 981a12-24 both ἐμπειρία and τέχνη are described as γνώσεις.

[38] See *Posterior Analytics* I.33 on how one cannot have δόξα of the objects of one's ἐπιστήμη or νοῦς. That perception cannot be a sort of δόξα, follows directly from (amongst other things) Aristotle's arguments against identifying φαντασία with δόξα see (*De Anima* III.3 428a21-b9, cf. *Nicomachean Ethics* VII.3 1147bff).

[39] It is worth noting that VI.2 begins by listing perception, along with νοῦς and ὄρεξις, as a κύριον of action and truth. This at least suggests that here, as in the *De Anima*, he acknowledges a way in which perceptual states can be true, and therefore an important similarity between perception and ἐπιστήμη.

as the different parts of the soul have different types of virtue, so they have different types of γνῶσις.[40] It is natural that, in *Posterior Analytics* I.33 also, Aristotle should limit his attention to states of the intellectual part of the soul, since that treatise is concerned with ἐπιστήμη and the demonstrations on which it rests, both of which belong to the intellectual part of the soul. (However, as we learn in the treatise's final chapter, our γνῶσις of the principles from which these demonstrations proceed arises from prior γνώσεις belonging to the perceptual part of the soul.)

Given the range of states that qualify as γνώσεις, we would expect to find insight into the nature of γνῶσις in passages where Aristotle is attending to similarities between perception and intellectual states. Consider in this connection *De Anima* III.3's introduction to the discussion of νοῦς:

> {People} especially define the soul by two differences—by movement in place and by νοεῖν and φρονεῖν, and perceiving; but both νοεῖν and φρονεῖν seem as though they're a sort of perception; for by both of these the soul discerns (κρίνει) and gets to g-know some existent. (427a17-21)[41]

The idea of discerning (κρίνειν) goes on to play the central role in the following chapter's argument for νοῦς as a faculty distinct from perception (and φαντασία).[42] It also makes an appearance at a crucial juncture in *Posterior Analytics* II.19, where perception is described as a "connate discerning capacity" ("δύναμιν σύμφυτον κριτικήν") that plays a crucial role in our getting to g-know principles (99b35).

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[40] Presumably, the concepts "virtue" and "γνῶσις" are underwritten by the same sort of unity amongst their objects that unites the concept "soul" itself—namely successive unity. Indeed, the relations between the parts of the soul (as characterized in *De Anima* II.3 and III.11-13) is parallels both the relation between the virtues of character and of thought (as explained in *Nicomachean Ethics* VI.13 and VII) and the relation between the types of γνῶσις that belong, respectively, to the perceptual and intellectual parts of the soul. However, since pursuing these parallels would take us into ethics, and thus far afield of our purpose, I confine myself here to discussing the types of γνῶσις.

[41] Cf. *De Sensu* 445b15-16, where Aristotle asks about certain hypothesized bodies "By what would we discern and g-know them?" A case could be made for reading the "καὶ" in both passages exegetically. I think doing so would portray the relation between g-knowing and discerning as only slightly more intimate than Aristotle actually takes it to be.

[42] The term can be found in many of the *De Anima*'s broad discussions about the way in which perception or νοῦς functions. In addition to the two passages mentioned here, noteworthy occurrences include 418a14 where we learn that touch discerns multiple pairs of contraries, 431a20-24 where Aristotle discusses differentiation between sensibles in different modalities, 424a5 where we learn that the senses are able to discern contraries by being means, and at 422a31and 425b21 which explain how sight discerns both light and dark. (We've already seen that a generalized version of this last point is made about γνῶσις at 430b20-23; *Metaphysics* Θ.2 makes the same point about ἐπιστήμη [in a broad sense that includes τέχνη] at 1046b7-25.)

Though Aristotle is well known for regarding perception (and, like it, thought) as a sort of reception of information (literally of form) from objects, "κρίνειν", with its root meaning of "picking out", connotes an activity directed outwards at objects in the world—the activity of discriminating objects from their backgrounds. This sort of object-directed activity on the part of perception is not incompatible with its being a reception of information, but it is easily overlooked when the emphasis is placed on receptivity, and it is important for making sense of Aristotle's position.[43]

If one thinks of discriminating even the simplest element within one's sensory field, say a tone in a hearing test, it is immediately evident that it would take many propositions to capture what one knows in virtue of that discrimination: where the tone is located, how loud it is, how high or low, etc. If we think of the γνῶσις of indivisibles by analogy to the discrimination of such perceptible objects, we can understand how it is that such γνώσεις (e.g., our γνῶσις of the category quality) can be simple, even if articulating it would require many propositions (viz., perhaps, the propositions that constitute *Categories* 6).

In §3.3.1, we will discuss the sort of discernment involved in specifically intellectual γνῶσις, but first there is some unfinished business to attend to. We have said just enough about γνῶσις already to see our way through the confusions raised at the end of §3.1.3. Let us turn to them now.

3.2.2 Truth and error without division or combination

Whatever confusions we may have about how the indivisible thoughts qualify as claims and about how some of them can serve as terms in propositions, we can see how Aristotle thinks that thoughts of, e.g., individual οὐσίαι can be divided into the thought "οὐσία" and the thought of some differentiating characteristics which make the οὐσία in question the οὐσία it is, and we can see how he thinks that "οὐσία" itself cannot be further analyzed in this matter. With this in mind let us return to some of the texts we considered in §3.1. I begin with the passage from *De Anima* III.6.

[43] Contemporary accounts of perception that combine these elements can be found in Gibson 1966 and 1986, Dretske 1999 153-168, and Noë 2004.

> While a claim (φάσις) is "something of something", just as an affirmation (κατάφασις) also is,[44] and all {claims} are true or false, not every thought is {this way}. Rather, the {thought} of what something is with respect to its being what it is (ὁ τοῦ τί ἐστι κατὰ τὸ τί ἦν εἶναι) is true, and it's not something of something. Rather, as the sight of the [distinctive] object is true, though whether it's a <white> man or not is not always true, so it holds with whatever things lack matter. (430b26-30)

Since the indivisible thoughts are said to be true in the way that (a certain sort of) sight is, we must start by discussing in what sense perception can be true. The language of truth and falsity is applied to perceptions and to φαντασίαι (which are states of the perceptual part of the soul) frequently in the *De Anima*'s discussions of these faculties, where it is evidently being used in a looser sense than it is in the discussion of thought. The thoughts singled out in the present passage are not being said to be true in the way that perceptions can be; the point is rather that, with respect to the alternative between truth and falsity, these thoughts stand to other thoughts as the perception of proper sensibles stands to the perception of incidental objects—e.g., as the perception of white stands to the perception of Diares' white son.[45] The composition of some thoughts from others generates the alternative between truth and falsehood because it introduces the possibility of error—of miscombination. Since each of the units corresponds to something real, a miscombination or falsehood is a combination of psychological units which fails to correspond to any combination of the existents to which the units correspond. A true combination, by contrast is one that corresponds to a real complex object, and its truth consists in the preservation in the complex of the correspondence to reality already exemplified in its units. Thus we can see the respect in which indivisible thoughts are true if they serve as the units from which complex thoughts are composed. Indeed, though the truth of the complex thoughts is more familiar to us, it is ultimately to be understood in terms of the relation the unit-thoughts bear to

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[44]Torstrik replaces the manuscripts' "φάσις" and "κατάφασις" with "κατάφασις" and "ἀπόφασις", respectively. Ross accepts the second of these emendations while rejecting the first. Ross' apparatus and commentary give no basis for either of these emendations, and both his reading and Torstrik's seem inferior to the manuscript reading. It is an affirmation (κατάφασις) that is paradigmatically "something of something", so it makes good sense in the "ὥσπερ" clause. Granted, the "και" in that clause is awkward, but not terribly so. "Φάσις" is more general than "κατάφασις" insofar as it subsumes affirmations and denials, and so the sentence as written is makes sense. The point is that not all claims, not just affirmations, claim something of something. My only hesitation is that it is not clear that Aristotle does think this about all φάσεις. *Metaphysics* Θ.10 1051b24-5 may imply the contrary in its contrast between φάσις and ἀπόφανσις (see discussion below). If this is the right, Aristotle should use ἀπόφανσις" in the present passage. Still it is not unusual for Aristotle to ignore in one work a distinction drawn in another; "φάσις" in the present passage may be interchangeable with "ἀπόφανσις" in the present passage, despite being is reserved for thinner meaning in the *Metaphysics* passage.

[45] See *De Anima* II.6.

their objects: it is only because the units correspond to objects that combinations of them can *represent* objects at all, and, therefore, that they can misrepresent them.

This more basic sort of truth, which does not require combination, comes under discussion in *Metaphysics* Θ.10, which I quote now with an embedded outline for ease of reference.

> {A} In the case of an uncombined thing, what are existence or non-existence and truth and falsehood? {A1} For it's not a combination so as to exist when compounded and not to exist if it's divided, as it is with the white wood or the diagonal being commensurate; {A2} nor will truth and falsehood still belong in the same way as they apply also in those cases. {A3} Instead, just as truth is not the same in these cases, so existing is not {the same}.
>
> {B} Rather, truth and falsehood are {as follows}: {B1} truth is touching (θιγεῖν) and claiming (φάναι) ({B1a} for an affirmation (κατάφασις) and a claim (φάσις) are not the same), {B2} while falsehood is being g-ignorant and not touching. {B3} For there's no erring about what something is, except incidentally; {B4} likewise also in the case of the οὐσίαι that aren't combined ({B4a} for there's no erring, and {B4b} everything is actually, not potentially, {B4b1} for {otherwise} they would have come to be or passed away, {B4b2} but in fact it neither comes to be nor passes away, {B4b2a} for {if it did} it would have come to be from something). {B5} In the cases of whatever is just what something is and an actuality, there is no erring; rather either one thinks or one does not. {B6} However, about these things, one can seek what they are and whether they are this way or not.
>
> {C} Existence as truth and non-existence as falsehood are {as follows}: {C1} in one case, if there's compounding it's true, and if there's not compounding it's false; {C2} and in another case, {C2a} if it even exists, it is *thus*, and if it's not *thus*, it doesn't exist, {C2b} and truth is thinking these things, {C2c} and there is not falsehood nor error, {C2c1} but rather g-ignorance ({C2c2} not like blindness, for blindness is as if someone wholly didn't have the intellectual {faculty}). (*Metaphysics* Θ.10 1051b17-a4)

Aristotle gives his account of the truth of uncombined things in the sections I have labeled B and C2. For an uncombined thought to be true is for it to touch its object or to "claim" it. Given the context, φάναι here cannot mean to claim anything *about* the object, nor can it be "something of something" as *De Anima* III.6 430b26 tells us φάσεις are, because then it would not be simple. This is, presumably, the point made by contrasting φάσις and κατάφασις, so φάσις must here be used quite generally for any expression, including the expression of what one knows in virtue of "touching" a simple object.

The metaphor of touching here denotes the relationship in which the soul stands to an object when it knows it. It is especially apt in the cases under discussion, because what is known involves no combination so that there is no way to misapprehend the object without failing to be in touch with *it* at all. Thus, in the case of the indivisibles, what we might call semantic failure (or non-representation) is possible, but misrepresentation is not. Aristotle is ambivalent about whether to call the sort of failure that is possible "falsehood": he does so in B2, but says the opposite in C2's concluding summary. Throughout, though, he characterizes the relevant state as a sort ἄγνοια, thus implying that a successful thought about an indivisible is a γνῶσις.

His view, then, is that an indivisible thought is an instance of knowledge and thereby in touch with the world. This contact with the world is inherited by the complex thoughts composed from it, which are thereby about something; but the complexity of these thoughts prevents the aboutness they inherit from their constituents from being sufficient for knowledge, and this gives rise to a new possibility: misrepresentation of the objects. The advent of combination introduces a gap between truth and meaningfulness that cannot arise in the case of indivisibles. Without this gap, with respect to any given object, one is either knowledgeable or wholly ignorant.

We can restate the point by drawing a contrast to the predominant contemporary view, which holds that semantics precedes epistemology in that before something can be knowledge, it must first have semantic content—i.e., it must represent the world or something in it as being a certain way. On this view being a thought precedes being an item of knowledge. The thought's content can either be true or false (or more broadly veridical or non-veridical) and if it is true and certain other conditions are satisfied, the thought qualifies as knowledge. By contrast, an Aristotelian γνῶσις needn't have any content that could be false. To be a γνῶσις is to stand in a certain relation to existing objects. It is by standing in this relation that the basic γνώσεις are contentful and qualify as νοήματα. But they are νοήματα that cannot fail to be true. Other νοήματα derive from these basic ones and inherit their content from them, but the mechanism of transmitting content does not necessarily transmit truth. Thus the derivative νοήματα, like thoughts on the contemporary conception, have content that may be false, and therefore they are not necessarily γνώσεις.[46]

[46] My interpretation on this point may be usefully compared with Charles' account of how complex but not simple names can be significant while lacking referents. He writes:

I wrote earlier that Aristotle's conception of γνῶσις differs from contemporary epistemologists' conceptions of knowledge as a sort of belief, in that γνῶσις is broader, including perceptions which are not beliefs. We can see now, that the issue is not just that there are perceptual as well as conceptual γνώσεις, but that at either level, there is an important structural difference between Aristotle's account and the contemporary view. Contemporary epistemologists (by in large) view knowledge as a species of a genus whose members need not be true (or veridical), and they differentiate knowledge within this genus by (amongst other things) truth. A structurally similar account could be given of perception, and indeed just such an account is part of standard representationalist theories of perception. But Aristotle's understanding of perceptual and conceptual γνῶσις is different, and it makes it more natural to group them together as one sort of thing. To g-know is to be in a certain sort of relation to the world. One aspect of this relation is the feature we call "truth" when contrasting it with falsity; but, though this feature belongs to all γνώσεις, the contrast with falsity arises only in the case of certain derivative νοήματα that are capable of inheriting content from γνώσεις without standing in the relation to objects that a γνῶσις must.

> The significance of the simple and compound names is fixed in radically different ways . As a consequence, while simple thoughts must signify one object or kind in the world, compound names need not. For the significance of the latter is fixed in a way which does not depend on their being one kind in reality which brings them about in the likening way. (2000 89-90)

Later (135-6) he recalls this distinction between simples and complexes to explain the falsehood of propositional thoughts. The major difference is that Charles does not address the questions about the relation between thought and γνῶσις, that are driving me here, and is instead focused on the relation between language, thoughts, and objects. Despite this difference in focus and orientation, there are important commonalities. I agree that Aristotle gives a single explanation for the falsehood of propositions and the emptiness of concepts. However, I disagree with his treatment of the difference between the types of thoughts as a consequence of the difference in the ways the significance of simple and compound names is fixed. He draws on Aristotle's remarks about compound names in *De Interpretatione* (at 16a21-5 and 16b32), to suggests that complex names signify complex thoughts, which are composed of simpler thoughts placed into some relation by the thinker. The referents of these names is then determined by a function in which these simple thoughts serve as input. I more or less agree with Charles on the nature of complex thoughts (though whereas Charles seems to think that there are many possible relations in which the component thoughts can stand, I doubt that Aristotle recognizes any relations other than that of subject to predicate). However, I think he is mistaken to take the *De Interpretatione* passages as evidence that Aristotle thinks he needs a special theory of the signification of complex names. Since he never gives such a theory, the more natural reading is that he thinks that they signify just as simple ones do and that he mentions them only to make it clear what he means in saying that the parts of a name do not signify. For all Aristotle says here, there may be simple thoughts corresponding to complex names, and there is reason to think that there are: the concept "ἐνέργεια" is likely to be indivisible, whereas the word is composed from "ἐν" and "ἔργον". Similarly, the concept "ὀστρακόδερμος", though it is probably divisible, is surely not composed of thoughts of pottery and skin. Finally, Charles recognizes, there can be complex thoughts (such as that of "void") which have simple names. Given all this, I don't think there's any interesting connection between the complexity of names and of thoughts.

According to this approach to knowledge and truth, any conception of a mental state which can fail or succeed at being knowledge is derivative on a prior conception of knowledge. Thus (g-)knowledge must be recursively defined. In Aristotle's terminology, it forms a succession, and only for derivative forms of knowledge is there a contrary, erroneous state. The situation is complicated, however, because (as we'll discuss in some detail later), different γνώσεις are primary in different respects. For our present purposes, however, we can identify the primary γνώσεις with the two sorts of indivisible thoughts that we met in §3.1.3.

An indivisible thought is a primary γνῶσις and cannot be in error. A proposition, which combines such thoughts can be true and a γνῶσις or false and fail to be one.[47] Matters are complicated somewhat by the category of thoughts that are divisible but undivided, such as thoughts of ice or goatstags, especially since the thought of what such an object is with respect to its being what it is does qualify as indivisible. This latter sort of thought qualifies because ice is solidified water "straightaway" or "per se" (to borrow the idioms of *Metaphysics* H.6 1045a36-b7 and the *Posterior Analytics* respectively); and, likewise, if there were goatstags, they would be straightaway animals with certain features. However, neither ice nor goatstags exist "straightaway" or "per se".[48] Whereas οὐσία and quality are straightaway certain existents. goatstags do not exist at all, and ice's existence amounts to something's else being a certain way (viz. to water' being solidified). The grasp of ice's existence, therefore, isn't indivisible and basic, as the grasp of οὐσία's is. The thought of ice, therefore, is not a primary γνῶσις and the thought of goatstags is not a γνῶσις at all, but a sort or failing analogous to falsehood. Its difference from falsehood lies in that the thought is not an active combining of elements conceived first as distinct, but rather begins by thinking them as a unity. In the normal use of a concept we assume rather than assert that is has instances, and within the context of this assumption, the concept stands to the proposition as truly indivisible thoughts stand to all other thoughts.

Divisible concepts, then, though composed from other concepts, are not *combinings* of concepts in the way that propositions are combinings of concepts. It is of such combinings that Aristotle says in *De Anima* III.6 (just prior to distinguishing potentially from actually ἀδιαίρετον

[47] The derivative thought's status as a γνῶσις likely requires more than mere truth (which might be accidental), but we can leave this aside for the moment.
[48] On existing per se, see *Posterior Analytics* I.4 73b6-9.

thoughts): "It is νοῦς that makes each {combination} one." (430b5-6) The implication is that νοῦς is not responsible for the composition of divisible concepts—that the mind does not construct them from the indivisible ones. Rather, as we've already seen, we divide out our concepts from things that are presented to us as wholes—e.g. from white men, we divide out white and man, and then we further divide man, into biped and animal. The indivisible concepts represent the terminus of this process. In this respect, they are something that we reach rather than something that we begin with. But in another respect we have them all along, they are present in potentiality in the concepts from which they can be reached by division—indeed this is what it is for those concepts to be divisible. And as implicit constituents of them, the indivisible concepts, enable the divisible ones to (fallibly) represent the world.

We have seen how indivisible thoughts can be true and how they are impervious to error. Aristotle does tell us, however, of two respects in which error concerning indivisibles is possible. First, B3 (1051b25-6) allows that there is error (ἀπατή) about what something is κατὰ συμβεβηκός. There is some interpretive controversy about what such incidental error would consist in. Alexander and Bonitz interpret this to mean there is error only in an extended sense of the term that includes ignorance. Ross argues that "κατὰ συμβεβηκός" cannot be read in this way and suggests instead that Aristotle is speaking of error that is incidental to the object's being uncombined. On this view, insofar as the object is a single term, it impervious to error, but, considered as combination of its genus and differentia it may be false.[49] Ross' interpretation is superior to the one he criticizes, but I doubt that it is correct. Given the role of the remark in the passage, we should expect it to be making a familiar point and there is a familiar point which it can naturally be read as making.

The subject of the passage is οὐσίαι without combination. Aristotle explains how error is not possible in their case by reference to the more familiar point that there is no error about what something is. It is in this context that he says that we can err about what something is only κατὰ συμβεβηκός. The most natural reading of this is that we can err about its incidental features. For example, we can erroneously think that a given man is white, that a given white thing is a man, or that some men have horns. There is an analog in perception to the sort of error that is possible

[49] Ross (1947 v.2 p. 277) refers to *De Anima* III.6's discussion of the way in which some ἀδιαίρετα are divisible as possibly offering support for his reading, because the ἀδιαίρετα are there said to be divisible κατὰ συμβεβηκός (430b16-17), but he calls the interpretation of this comment on which it would support his present interpretation "very doubtful" (without giving any reasons for this judgment either here or in his commentary on the *De Anima*).

in indivisible thought, and it too is called κατὰ συμβεβηκός: one cannot erroneously see white as black, but one can err κατὰ συμβεβηκός by taking the white thing you see to be (e.g.) Diares' son when it is not.[50] What we cannot do is err about what it is to be something *per se*. We cannot, e.g., think that what it is to be a man is to be a quadruped, because anyone who we might describe as "thinking" this would fail to make even the sort of cognitive contact with men that would be required to say something false about them. However, Aristotle must acknowledge that one can get something's definition wrong, because he spends a great deal of time refuting putative definitions, and devotes much of *Topics* VI to giving advice on how to do this. This sort of concern is likely what prompts him to qualify the claim that one cannot err about what something is, and the idea of incidental predication does make room for him to explain this sort of error, by saying that the mistaken definer makes contact with the definiendum only incidentally. One cannot think that man, the biped animal, is quadruped, whereas one can think that man, the white thing, is quadruped; in this latter case, however one isn't thinking about man except incidentally, insofar as the white things about which one is thinking happen to be men.[51]

We've seen, then, at least an indication of how one can err κατὰ συμβεβηκός about what something is. The passage may suggest that there is a parallel error possible about indivisible things. Whether or not this suggestion is intended, I think it is correct. The possibility of error for Aristotle presupposes a combination, and an indivisible is not itself a combination, so one's thought of what it is cannot be in error, but an indivisible object can serve as a unit in a combination, and thoughts of any such combination, which can be in error, are κατὰ συμβεβηκός about the indivisible object. For example, someone who thought that two was a factor of seven would be mistaken about two κατὰ συμβεβηκός, whereas someone who (*per impossible* on Aristotle's view) thought that two was odd would be mistaken about it *per se* (assuming that being even is part of what it is to be two). Similarly, consider the case of the categories, which we took earlier as our paradigm of indivisible things: one cannot by Aristotle's lights be in error

[50] On incidental objects of perception, see *De Anima* II.6 418a20-25, on the possibility of error with respect to them, see II.3, 428b17-25.

[51] I will treat this issue in greater detail in §4.2.1, but it is worth observing now that in *Posterior Analytics* II.8, during a discussion of how we come to know definitions, Aristotle distinguishes between knowing that something exists "κατὰ συμβεβηκός" and knowing this by having "something of the object itself" (93a21-24). He goes on to say that to seek the "what it is", when one is in the former situation is "to seek nothing". Presumably, then, to assert some definition as the result of such a search is to assert nothing—or at least nothing that is non-incidentally about the object.

about, e.g. what it is to be a quality or quantity, but one certainly can make category errors—i.e., one could assign a given existent to the wrong category. Indeed, Aristotle thinks that such errors were common amongst his predecessors, who had not yet explicitly distinguished the categories.

Turning now to a second issue, how should we understand the ignorance or failure to "touch" with Aristotle identifies as the contrary of knowledge of ἀδιαίρετα? If a grasp of what something is qualifies as an uncombined thought, then the ignorance in question cannot be a total lack of content. Just as one can think that ice is solidified water, one can think that a goatstag is an animal with goat and stag parts, and this thought is both contentful and somehow erroneous. On Aristotle's view, the sort of error involved could not be a misrepresentation, because there is no such object as a goatstag to misrepresent. Thus the thought of goatstag is out of touch with reality without misrepresenting anything. As we have already seen, the thought of a goatstag is able to have content despite being out of touch with reality only because there is a respect in which it does involve combination. The non-existence of goatstags amounts to no animal's being such as a goatstag would by definition be—it amounts to animal's not being combined with the distinctive goatstag features. Thoughts of indivisible objects, cannot be out of touch with reality even in this way. Such thoughts are necessarily γνώσεις of real objects. (However, there is nothing to prevent one from taking some thought to be this way when it is not.[52])

Thus, at B6, Aristotle says about "whatever is just what something is and an actuality" that "one can seek what they are and whether they are this way or not" (1051b30-3). "This way" refers to the content of the account Aristotle has just given of the uncombined thoughts. What it is possible to investigate is whether the account indeed applies. In order to investigate this, one

[52] Charles (2000 136-7) makes this point as well. He thinks such errors occur when the thinking faculty is functioning improperly with the result that something other than a given simple object affections the thinking faculty in the way that the simple object normally would. There are a number of problems with this view. First, I know of no direct evidence in Aristotle for the view that the thinking faculty could function improperly and so be affected by its objects abnormally. Charles, suggests that involvement of φαντάσματα in thought could lead to this, because the φάντασμα the thoughts "identity conditions", but again I don't see any evidence of this in Aristotle. (Charles refers to *On Memory* 450b25-9 as showing that one needn't always know the processes that give rise to one's thoughts, but this passage does not support his case, because in those cases where one does not connect the φάντασμα to an external object, the φάντασμα fails to be of that object at all.) Second, his approach to this issue requires universals to act on us, which would be impossible given the account I ascribed to Aristotle in the last chapter. (I discuss further how the universal serves as an object for thought in §3.3.) Third, I don't think a special account of how we can make this sort of error is necessary. This sort of error only seems perplexing if one thinks of divisible thoughts as being complex in some way that should normally be introspectively apparent, so that divisibility should always be obvious to the subject. Propositions are complex in this way, because they are combined by the subject, but this is not the case with the concepts that compose them. Even those concepts that are divisible are undivided (unless one can divided and reconstituted them, and we play no role in their intensional composition.

must be able to entertain the thought that the account applies without knowing that it does. The grammar makes it ambiguous as to whether what can be investigated is whether Aristotle's general account of indivisibles is true or whether it applies to a given object (i.e., whether that object is indeed indivisible). Given the context, the first interpretation seems more likely, but both claims must be true on Aristotle's account. After all, in this very passage he is conducting an investigation of what it is to be uncombined, and he thinks that some of his predecessors mistakenly supposed certain combined things to be uncombined.[53]

The upshot of the preceding is that, though there is a category of thought that does not admit of falsehood, a thinker does not automatically know whether a given thought falls into this category. In Chapter 4 we will find reason to doubt that Aristotle thinks there is any infallible method by which a thinker can identify (all) the thoughts of this type.[54] As has often been observed, Aristotle and Plato do not share the modern emphasis on refuting skepticism and Aristotle at least was not seeking Cartesian certainty. However this should not be taken as evidence that he was not interested in questions of justification. In §4.2, we will see that he does advance standards by which putative knowledge can be evaluated, though his focus in doing so is less on justifying beliefs than on providing methods by which we can discern new facts—for example, that a certain object is indivisible. These methods, and more generally the path to indivisible thoughts are a topic for the next chapter, however. We turn now (in §3.2.3) to the role that these thoughts play in ἐπιστήμη, before broadening our scope to thought generally and taking up (in §3.2.4-5) the earlier postponed issue of the sort of γνῶσις in which thought consists.

3.2.3 Indivisible thoughts as principles of ἐπιστήμη

Before proceeding, it will be helpful to review some of our results from earlier in the chapter, and to restate some familiar Aristotelian doctrines in terms of them. "Γνῶσις" is Aristotle's general term for knowledge or awareness, which can take place either in a perceptual form or intellectually. A γνῶσις of either sort, can be either simple (i.e., without division or combination)

[53] Consider the case of Anaxagoras who Aristotle chastises in *Physics* I.4 for multiplying elements far beyond necessity. Presumably someone could make the opposite mistake as well, if e.g. he tried to account for the fifth element by making it a complex of the other four.
[54] Though *Metaphysics* Γ.3-4 may give us an infallible method for identifying certain indivisible thoughts.

or complex. Attempts at complex γνῶσις (of either sort) can go wrong in ways that simple ones cannot. In the case of attempts at complex intellectual γνώσεις the result of such going wrong is falsity. "Thought" ("νόημα") is a generic term embracing intellectual γνῶσις and failed attempts at it. Simple (or uncombined) νοήματα are concepts. Complex (or combined) νοήματα are propositions. Some νοήματα are simple in an absolute sense and are not susceptible to division. Others can be divided, and in this sense are complex, but nonetheless function as single units in thought—as subjects or predicates in propositions. Νοήματα of this last sort are said to be divided potentially, but not actually, and they are concepts as well. Their divisibility consists in the fact that their definitions can be reconfigured into propositions in which the differentia is asserted of the kind, and such propositions are equivalent to the propositions that the complex object of the νόημα exists. A successful νόημα of this last sort—one which didn't go wrong—would be a complex γνῶσις. Ἐπιστήμη is a variety of complex γνῶσις.

In particular, ἐπιστήμη is γνῶσις of a complex object as necessary, which we have by grasping the object as following from its causes. To e-know an object is "to g-know that the cause due to which the object exists is its cause and that it is not possible to be otherwise" (*Posterior Analytics* I.2 71b11-12). The necessity is expressed in the form of a deduction of the object from its cause(s). Such deductions are called demonstrations, and an ἐπιστήμη is (or can be recast into) a body of demonstrations about a single kind of thing (I.28).

To use Aristotle's famous example, if thunder is a certain noise in the clouds one has ἐπιστήμη of it when one grasps that the clouds must have this noise because fire is being extinguished in them—when one combines the thoughts of noise and clouds through the middle term "extinguishing", which designates the cause of the clouds' being noisy. If one has done this and the thoughts of extinguishing's being noisy and of clouds' extinguishing are indivisible, then one will grasp the clouds as necessarily noisy. If, on the other hand, the noisiness of extinguishing or the clouds' being extinguishers is divisible, then further middle terms will have to be found. (Likely the clouds are extinguishers because they are moist, for example.) Aristotle calls the process of deducing from causes demonstration, the first causes from which the demonstrations ultimately proceed principles, and the γνῶσις of these principles νοῦς.

In *Posterior Analytics* I.2 (72a14-24), Aristotle divides principles into axioms and posits (θέσεις). Axioms are presupposed by all learning and are common to all ἐπιστῆμαι, while the posits are distinctive to different ἐπιστῆμαι. Posits are then divided into definitions and

suppositions (ὑποθέσεις). It is these two types of posit that correspond to the two types of indivisible thoughts we have been discussing. A definition is a statement of what something is, and a supposition is an assertion of the existence of a basic object, whose existence cannot be demonstrated (or at least not demonstrated by the ἐπιστήμη in question).[55] Such objects are alternatively referred to as "primaries" or (confusingly) "principles".[56]

The ἐπιστήμη itself consists in a body of deductions (demonstrations) from the suppositions of the existence of the primaries. Thus Aristotle sometimes tells us that ἐπιστῆμαι are distinguished from one another by their posits and sometimes by their terms. The terms comprise the items whose existence is posited (viz. the primaries) and the other defined items. The things that are posited to exist constitute the kind that is the ἐπιστήμη's subject matter and they serve as the (ultimate) subject terms in its demonstrations. The other terms serve as predicates.[57]

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[55] We can apply *De Anima* III.6's distinction between thoughts that are divided potentially and actually here. A thought that can be divided potentially (e.g. the thought of ice) might be left undivided and serve as a supposition for an ἐπιστήμη of ice.

[56] *Posterior Analytics* I.2 71b15-24. "Principle" (ἀρχή) has two related uses in connection with ἐπιστήμη. First the undivided thoughts which constitute νοῦς are the principles of ἐπιστήμη in the sense of being the cognitive states which on which the ἐπιστήμη depends. This is the usage that we find, for example, in *Posterior Analytics* II.19. Second, the objects of these thoughts are the principles on which the objects of the ἐπιστήμη depend, as e.g. all the numbers (for Aristotle) depend on two and three. This is the usage that we find in, e.g. *Metaphysics* M.10. It is in this second sense that the primary objects are called principles, and in this same sense anything's essence is a principle. "Ἀρχή" occasionally appears in a third usage connected with ἐπιστήμη to refer to the starting-points from which an inquiry proceeds towards the principles from which ἐπιστήμη will then be reached by demonstration. See, e.g., *Nicomachean Ethics* I.4 1095b4-8. In all these uses the term has the same basic sense of "origin" or "starting-point". In the first usage, it is the origin of ἐπιστήμη or demonstration, in the second, it is the origin of the objects, and in the third it is the origin of an inquiry. (On "principles" or "primaries" as the indemonstrable terms of ἐπιστῆμαι see Sholz 1975 §11.)

[57] See *Posterior Analytics* I.10 76b11-16:

> For every demonstrative e-knowledge is about three things: whatever it posits to exist (and these are the kind whose *per se* affections it studies), and the common things called axioms, from which primaries it demonstrates, and thirdly the affections, of which it assumes what each signifies. (Posterior Analytics I.10 76b11-16, cf. I.28)

Hintikka (1972 5) maintains that what is assumed to exist is simply the kind and "the existential force is carried downwards from wider terms to narrower ones". The idea is, presumably, that from the existence of "animal" (along with some other premises) one will prove the existence of the different forms of animal. The text here suggests just the opposite: that several forms of animal may be posited separately, with the kind being constituted by the sum of the (related) posits. (For criticism of the details of Hintikka's specific proposal see Ferejohn 1991 33-6.) Other texts (e.g. II.13) show that in at least some cases only certain of the members of the kind, the primaries, are posited (e.g. 2 and 3 in the case of number), and that the existence of the remaining kind-members is demonstrated. The examples of this, however, are all mathematical, and (as of *De Anima* III.3 and elsewhere) numbers and figures are successions rather than kinds proper, so it's not clear what implications should be drawn from these passages for the study of other kinds. *Politics* IV.4 suggests something like the model Hintikka proposes:

> If we purposed to grasp forms of animal, we would first determine (ἀποδιορίζειν) what it is necessary for every animal to have--e.g., some of the senses and what works up and receives the

The identification of these truths with concepts, explains a much remarked-on feature of *Posterior Analytics* II.19. There Aristotle frustrates many readers by giving what seems to be an account of concept-formation as his long promised solution to the problem of how we know the principles of demonstration. Discussions of this chapter typically begin by noting the discrepancy between concepts and demonstrative principles which must be propositional in form, and then excuse Aristotle by noting that (many of) the propositions in question will be definitions, the possession of which may be constitutive of possession of the concept.[58]

In fact, of the things Aristotle describes as principles in I.2, only suppositions might be able to serve literally as premises in a demonstration, and even this is true only in a qualified way. Since a definition formulates what something is, it is not a proposition and nothing follows from it as such. Rather, as we saw in the case of the ice demonstration earlier, definitions play a role in ἐπιστήμη by making clear what it would be to prove the existence of a given thing. If ice is by definition solidified water, then for ice to exist is for water to be solidified, and one proves its existence by finding a middle term between water and solidification. Definitions also make clear what premises one is entitled to in virtue of knowing that a given thing exists. For example, once one knows that there is ice, its definition licenses the premise that it is solid from which other things about it may follow (e.g. that it can be walked on). Even in the case of primaries, the definitions provide content to the suppositions that they exist, and it is not the suppositions alone that serve as premises. Geometrical proofs, for example, do not depart from the premise that there are points but from basic premises about them, which are licensed by their definitions—e.g., from the premise that points have no magnitude.

> food (e.g., a mouth and stomach), and, besides these, {it is necessary} for each {to have} the parts by which it moves. If these were the only {ones} and they were differentiated (I mean, e.g., {if there were} several kinds of mouth and stomach and senses, and again {several kinds of} moving parts) then the number of yokings together (συζεύζεις) of these would, from necessity, produce several kinds of animal. For, e.g., the same animal cannot have many different {kinds} of mouth, nor likewise of ears, so that when all the possible (ἐνδεχόμενοι) couplings (συνδυασμοί) of these were grasped, they will produce as many forms of animal as there are yokings together of the necessary parts. It's the same way with the constitutions we mentioned. For cities too are compounded not from one but from many parts, as we've often said. (1290b25-38)

Here the various forms of animals are "produced" from general knowledge of the kind, and we are told that the same method applies in other cases as well. Likely this production amounts to the demonstration of the produced items. The same verb (ποιεῖν) is used of principles' producing demonstrated items in *Posterior Analytics* I.10 (76a42) and for terms' or premises' production of a deduction in the *Prior Analytics* I.7 (29a29) and I.26 (42b24), and the sort of production in the present passage can be viewed as an analog of geometrical construction, which is Aristotle's paradigm of demonstration in an actual science.

[58] Ross 1949 679, Barnes 1994 271, Kahn 1981 395, Apostle 1981b 292.

The propositions that figure as the literal premises of demonstrations are what Aristotle calls in I.4 *per se* predications. They predicate of an item a feature which by definition belongs to it—where the definition in question may be the definition of the subject or the predicate. In various contexts Aristotle refers to such propositions as immediate, undivided or uncuttable, contrasting them with propositions for which there is a middle term demonstratively uniting the subject with the predicate.[59] Such terms, however, are partial definitions, and in this sense definitions are principles. And, as we've seen, to have a concept is to know what something is—i.e., to have the sort of knowledge that is expressed definition, so it is correct also to say that concepts are principles of ἐπιστήμη. I turn next to Aristotle's discussion of the act of discernment in which this knowledge of principles consists.

3.3 CONCEPTS AS ΓΝΩΣΕΙΣ

3.3.1 Discerning essence

Aristotle's most sustained discussion of intellectual discernment as such occurs in *De Anima* III.4, as part of an argument that νοῦς is distinct from the perceptual faculty.

> Since a magnitude and a magnitude's being (τὸ μεγέθει εἶναι) are distinct (ἄλλο), and water and water's being {are distinct} (and this is so in the case of many other things, but not of all—for in the case of some they are the same), one discerns flesh's being and flesh either by distinct things or by {the same thing} distinctly disposed {ἄλλως ἔχοντι}; for flesh is not without matter, but rather, like the snub,{it is} a *this* in *this*. So, while it is by the perceptive that one discerns hot and cold and those things of which flesh is a certain λόγος, one discerns flesh's being by something distinct, either by something separate or by {something that is to perception} as the bent {line} is to the same {line} when straightened. Again, in the case of the things that exist by abstraction, the straight is like the snub; for it involves extension; but its being what it is (τί ἦν εἶναι), if straight and straight's being are different (ἕτερον), is something distinct (let it be duality). One discerns it, therefore, by something different or by {the same thing} differently disposed (ἑτέρος ἔχοντι). Generally, therefore, as objects are separate from matter so too are the {things} about νοῦς. (429b10-22)

[59] *Posterior Analytics* I.15-16, I.22 84a35, I.23 84b35, *Prior Analytics* II.27 70b14. See also *Posterior Analytics* II.16-19, where the uncuttable propositions are said to be definitions.

The faculty (or disposition of a faculty) that Aristotle here distinguishes from the perceptive faculty is, is of course, νοῦς. [60] Noῦς, is distinguished from perception, as the faculty that discerns an objects' being ("τὸ" + dat.+ "εἶναι") or "being what it is" ("τὸ τι ἦν εἶναι"). In my exposition, to avoid grammatical awkwardness, I'll use the traditional translation "essence" for these two Aristotelian formulae, though this translation can be misleading unless one takes care to separate the term from the baggage of medieval, modern, and contemporary metaphysical speculation.

Distinct though νοῦς is from perception, a message of the present passage is that, in at least many of its operations, it is intimately involved with the perceptual faculty, because the essences it discerns are non-accidentally embodied in matter. This connection between νοῦς and perception should come as no surprise, given the theme running through *De Anima* III, on which we're already commented, that there is no thought without either perception or φαντασία. However, the connection between perception and matter on the one hand and thought and immateriality on the other is not something we have looked at before. Indeed, from the passages we have looked at before, and from others to which we will turn shortly, we might have expected Aristotle in the present passage to differentiate νοῦς from perception, on the grounds that it discerns universals while perception discerns particulars.[61] And, in this connection, we've

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[60] For the sake of simplicity, and since it does not matter for our present purposes, I'll refer to νοῦς as a faculty, and ignore the possibility that it is a disposition (ἕξις) of a more familiar faculty. However, we should note that Aristotle regarded this possibility as important enough to mention twice, and there is a strong case to be made that he does, in the end, regard νοῦς as a ἕξις. When, in the following chapter, he distinguishes between the productive and the affected νοῦς, he describes the former as (amongst other things) a ἕξις, and there are several indications that the affected νοῦς is the perceptive part of the soul insofar as it is capable of being affected by the productive νοῦς. The doctrine that the affected νοῦς is perishable strongly suggests that it is bodily (431a25). Also III.7-8 tells us several times that thinking always involves an image (431a16-17, b2, 432a14-15); the interval between the first two statements to this effect concerns the way in which the several senses terminate in a numerically single mean that is multiple in being. This suggests this mean is numerically identical to the affected νοῦς (though its being this νοῦς is different from its being the terminus of perception). The force of this suggestion is somewhat weakened by the unpolished nature of the chapter, which raises doubts as to whether it was written as a continuous whole. (Ross, who begins his discussion of it by telling us that "Torstrik pointed out that this chapter is not a connected discussion, but a series of scraps put together by an early editor" [303, Cf. Hamlyn 61], thinks that the three comments that I'm treating as continuous belong to distinct scraps. I don't think it is clear that this is the case, as the interpretation I've suggested above, makes at least rough sense of the continuity of these passages and of their function within *De Anima* III. But there remains sufficient grammatical and stylistic awkwardness to view the chapter with suspicion.) Some further support for the identification of the affected νοῦς with the perceptual part of the soul can be found in *On Memory* 1, on which see below §3.3.2 (especially n. 87).

[61] It is worth nothing that the examples Aristotle gives here of the things discerned by perception are all universals. His use of such examples does not contradict his view that in any given instance of perceiving what would be discerned would be particular; presumably perception discerns hot from cold only in particular cases, and a universal γνῶσις even of these perceptible qualities would require νοῦς. The examples do, however, show a different focus

become accustomed to the expansive sense of "matter" that includes "intelligible matter"—a phrase which may be a contradiction in terms in the idiom of *De Anima* III.4, even though Aristotle here draws a connection between the extension of geometrical objects, which *Metaphysics* Z.10-11 treats as intelligible matter, and the perceptible matter of which flesh is composed—indeed, he seems to cite the extended character of a line as requiring the involvement of perception in thoughts of the line, effectively treating the extension that underlies the line as a sort of perceptible rather than intelligible matter.

Matter in the present passage refers to perceptible matter, the stuff out of which bodies are composed, and indeed the passage sheds some light on why Aristotle elsewhere describes this matter as "perceptible" rather than as (say) "natural" or "bodily".[62] It is this matter which our senses discern. The primary sense is touch, and *De Anima* II.11 identifies its proper objects as "the differences of body *qua* body"—i.e., "those that differentiate the elements: hot, cold, dry and wet". (423b27-9).

The connection between being perceptible and being bodily is brought out in the present passage by the (otherwise odd) example of the perceptual faculty discerning flesh by discerning hot and cold. Presumably we're supposed to imagine ourselves tactilely discerning flesh from (say) hair by noticing a difference in temperature, as we might if we ran our hands over

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here. As in the other passages from the *De Anima* at which we've looked, he is focused on the hylomorphic division and composition that takes place in thought. We can glimpse, though, several ways in which hylomorphic decomposition leads to universality. Of course, as we saw earlier, the matter (whether perceptible or intelligible) once thought independently of its determining forms, will be a universal. More interestingly, though, the λόγος leads to universality in two ways. The more obvious of these, though I think the less important, is that discerning the essence or proportion from the matter enables one to grasp commonalities between the item whose essence it is and analogous items that consist of like proportions of other matters. In grasping that a line is duality in extension (if indeed it is) one unites it to duality in other subjects. Sameness of the λόγος across different subjects gives rise to analogous unities. The more important point is that two things can have the same underlying subject and the same proportions, while nonetheless differing in degree. Consider, for example, equilateral triangles of different sizes. Thus the idea of essence as λόγος gives us some purchase on the sort of sameness enjoyed by members of a form or the forms of a (non-ultimate) kind, even if these members differ from one another in the more and the less. Recall from Chapter 2, how the different forms of bird were distinguished by sets of features that all varied in the more and the less, but whose variations were not independent of one another. For example, swamp dwelling birds had long legs and correspondingly long necks.

[62] It is worth commenting briefly in this connection on the distinction here between things that are and are not separate from their essences. Things that do not have matter are identical with their essences, and these are the sort of absolutely indivisible items that we encountered in *Metaphysics* H.6 and Θ.10 and discussed in §3.1.4 and §3.2.2. These same items will count as identical with their essences in the idiom of the present passage. However, since the present passage is concerned only with perceptible matter and not intelligible matter, there may be some items that would not count as lacking matter and identical with their essences for the purposes of this passage, which would not so qualify for the purposes of the other passages. I have in mind things like numbers other than two and three and the fifty some odd movers of the celestial spheres.

someone's head.[63] But, of course, when one actually runs one's hand over a head, textural and other differences are far more pronounced than any difference in temperature, and Aristotle does recognize such differences as within the jurisdiction of touch.[64] And, of course, we more often tell where flesh begins and hair ends by sight through differences in color. Hot and cold serve the example better than these more obvious visual and tactile differences only because, as fundamental terms in Aristotle's physical theory, "hot" and "cold" put one immediately in mind of bodies, and it is plausible that the essence of a tissue like flesh would be a λόγος of these two, and it is this λόγος that is discerned by νοῦς.[65] Likely Aristotle mentions only hot and cold here, neglecting the wet-dry continuum, because it is easier to think of a λόγος as holding between two contrary terms than between four terms that fall along two separate distinct continua. Likely he intended us to think of the λόγος as a simple numerical ratio of hot to cold. As we will see, this is not ultimately accurate on his view, but this use of simplified examples is par for the course in Aristotle.

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[63] It perhaps goes without saying that what perception is discerning here cannot be the kind flesh, either in the sense of its discerning that there is such a kind or that the touched object is an instance of the kind. Either of these judgments would presuppose some sort of knowledge of what flesh is, which is part of what Aristotle is here arguing that we need νοῦς for. What perception discerns is *this object*, which is flesh, and it discerns it from non-flesh objects in virtue of (some of) the very differences which differentiate flesh as such from other kinds. Once this γνῶσις is articulated and made universal by νοῦς, it will qualify as a grasp of the essence of the kind (or at least of "something of the essence"—cf. *Posterior Analytics* II.8 93a21-29).

[64] *De Anima* II.11teaches that touch is concerned with many pairs of opposites, including "rough and smooth" and "hard and soft", but these stand to touch as "roughness and smoothness of voice" stand to hearing, whereas the differences of body *qua* body stand to touch as sound stands to hearing (422b17-33, 423b27-a2).

[65] Aristotle does think that essences are importantly analogous to such ratios and that some of his predecessors approached his own conception of essence (and related concepts) by speaking of ratios of elements.

> Even Empedocles occasionally stumbles upon this {viz. nature in the sense of final and formal cause}, lead by the truth itself, and is compelled to pronounce that the οὐσία and the nature is the λόγος—e.g., when he describes what bone is; for he does not say it is some one of the elements, nor two or three {of them}, nor all; but rather {that it's} the λόγος of their mixture. Thus it's clear that flesh too, and each of the other such parts, is the same way (τρόπον). (*Parts of Animals* I.1 642a18-24)

The reference is likely to Empedocles statement that "white bone" came to be from "two parts glitter of Nestis" (i.e., water), "four of Hephaestus" (i.e., fire), and (perhaps) two parts earth (DK 31 B 96, on which see Lennox 2001a 150-1). Aristotle goes on to say that Empedocles et al. did not draw this last conclusion and consistently cite such ratios as causes, because they lacked the ideas of "τί ἦν εἶναι and defining οὐσία", which he says was touched on by Democritus but was only really embraced "in Socrates' time" (an odd choice of words, since Democritus and Socrates were contemporaries). None of this should be taken to commit Aristotle to the view that biological tissues are properly defined by such ratios of elements (a position he expressly denies in Meteorology IV.12). The point is only that, given their other premises and certain Socratic and Aristotelian insights, the Empedocles et al. ought to have regarded ratios as causes. Further Aristotelian insights would have pushed them to replace or supplement these ratios with accounts of the roles served by the tissues in animal life. This last move, incidentally, would likely be an example of what Aristotle calls "thickening the middle" (*Posterior Analytics* I.23 84b35), but this is a topic for another occasion.

The hot and cold, then, are the matter for the ratio which is the essence. The flesh is perceptibly discerned by feeling its higher temperature as one's hand moves onto it from hair. This temperature is the ratio of (say) three parts hot to two parts cold (or two fifths of the way from the hot extreme to the cold), and it is this ratio of three to two that is discerned by νοῦς. Notice, however, that a thought of ratio as such would not be a thought of flesh.[66] If the object is going to be flesh rather than the ratio of three to two, then the ratio needs to be thought as a ratio *of hot to cold,* and the involvement of such perceptible qualities in the thought requires the involvement of the perceptual faculty.

The point of the present passage, however, is that the perceptual faculty is not wholly responsible for the thought, and it is worth pausing to consider just what it is for νοῦς to discern this ratio in the hot and cold. It cannot be simply to feel the specific temperature or even to recognize it, this is a function of perception alone. The obvious alternative is that we have discerned the essence of the flesh when we have come to regard that distinctive feel as a three to two ratio of hot and cold. This must be what Aristotle has in mind here. But he can only regard this as a very rough approximation to the truth, because even in the case of something as simple as flesh, the essence could not be a literal ratio of perceptible qualities.

Even if we suppose, counterfactually, that flesh has a consistent ratio of hot to cold (i.e., that all flesh is always at a certain temperature), this will surely not be distinctive to flesh, nor can temperature alone be how we perceptually discern flesh. We tactilely discern them also (and especially) by the various differences in texture alluded to earlier, and their ultimate bodily constituents are differentiated (according to Aristotle's chemistry) not just by the hot and cold but also by the dry and the wet. Thus at the superficial level of perceptible qualities and at the more fundamental level of physical constitution there are more than two opposed qualities at work. These different qualities are not commensurable. One can have a ratio of hot to cold

[66] For the same reason, I take it that, were this example true, the essence of flesh, would be "a three to two ratio of hot and cold", rather than simply the ratio "three to two". The essence of flesh is distinct from flesh not because it is the ratio *simpliciter*, whereas the flesh is the union of this and the underlying hot/cold continuum *simpliciter*. Rather the essence is the hot and cold's being in that ratio. This is something distinct from the flesh, because the flesh includes (whereas the essence does not) the hot and cold's capability of standing in other ratios (and so not being flesh at all). The flesh is the hot and cold in a three to two ratio, whereas the essence is its being in that ratio, and the matter is the hot and cold.

because hot and cold are along a single continuum, but there is no sense to talk of something being one part hot and three parts smooth.[67]

Matters get still worse when we set aside the (absurd) supposition that all flesh is always at the same temperature. As Aristotle is well aware, flesh will differ from flesh and hair from hair both in temperature and in all the other perceptible qualities in which the tissues differ from one another.[68] He recognizes such differences not only between animal species, but between members of a given species, and even between the different parts of a single specimen or in the same part at different times. Thus as one runs one's hand along a body, one may feel differences even in the flesh in addition to, but along the same continuum with, those one feels between the flesh and the hair. Accordingly, any λόγος of flesh would have to allow for differences in degree for each of its qualities, and, as we saw above, it would have to somehow unite incommensurable qualities. Neither of these feats could be performed by a ratio.

There is another reason why essences cannot be ratios of perceptible qualities as such. Although touch's proper object corresponds to the basic oppositions in Aristotle's physical theory, in terms of which it might be plausible to give the essences of things, this is not true of perceptible qualities as such. It would be bizarre to suggest, for example, that the essence of an apple might be anything like a ratio of light to dark or sweet to bitter, though we discern them by their color and taste. If our passage is to say anything coherent about the relation between perception as such and νοῦς, its point cannot turn on temperature's idiosyncrasy of being both a proper sensible and a difference of body *qua* body. I suggested earlier that it is because of this idiosyncrasy that Aristotle uses temperature as an example, but for it to function as an example we must be able to generalize from it to other cases and this cannot be done unless we allow both for more complex relations between perceptible qualities and essence than underlying, and for more complex relations than identity between perceptible qualities and the matter that underlies essences.

These several problems are solved by understanding the essence of a perceptible thing as the cause of the differences by which it is perceptually discerned. Since a ratio is a formal cause,

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[67] Indeed Aristotle (at least some of the time) does not to think that the elements earth, air, fire, and water are commensurable (*Physics* VII.4 248b13-15), in which case formulae like "two parts water to four parts fire", which Aristotle attributes to Empedocles (see n. 65 above), are ultimately incoherent.

[68] The *History of Animals* III.10-23 is devoted to cataloging such differences (some of which are explained in *Parts of Animals* II.3-9).

the (counterfactual) example of flesh's essence being a ratio of hot to cold would literally fit.[69] Causes, final causes especially, are able to unify large sets of qualities (as we have already discussed in §2.4.2), and they can admit differences in degree whereas ratios cannot. Since causation is transitive, essences can play a role in causing even features that are accidents of something's matter (as color usually is for Aristotle). Finally since, as we saw in §2.4.5, causes are grasped universally, cause can serve as the missing link between thought and universality, which (as we noticed earlier) is conspicuously absent from our *De Anima* III.4 passage. The connection can be spelled out as follows: concepts are γνώσεις of essences, which are causes, causes are known universally, therefore concepts must be universal.

If we understand essence in this way, then what is the message of the passage about the relation between νοῦς and perception? It tells us that we perceptually discern certain objects by perceptually discerning their matter—that is, we discriminate them from one another and from the background in virtue of the perceptible qualities of their matter. Noῦς then identifies the discriminated objects, by formulating a universal λόγος that reveals why the object has the perceptual features that it does. In the simplest case, this might be giving a ratio that locates the object relative to the extremes along a continuum, but it can (and in actual cases nearly always does) involve the whole explanatory apparatus of Aristotelian natural science.[70]

What we are given in *De Anima* is an extremely abstract account of thought, which focuses on the thought of a mature knower, and says comparatively little about how we develop this sort of knowledge. We will turn out attention to texts in which Aristotle discusses the development of conceptual knowledge in Chapter 4. For now we can say that a mature concept is a γνῶσις of something's essence which amounts to the cause of the characteristics by which it is discerned by some other γνῶσις. This other γνῶσις is, to use familiar Aristotelian language, "prior to us"—that is, it is closer to perception than the essence is.[71] In the cases we have been looking at the γνῶσις is perception, but this need not be the case. The III.4 passage on which we've been focused includes an example of a geometrical object—a line, which Aristotle treats

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[69] However, the actual λόγος of flesh (and other animal tissues) must be final-causal according to *Meteorology* IV.12. (See especially 390a7-15.)

[70] *Meteorology* IV.12 at least suggests that final causes will always in the end be involved, for it says that everything except "the extreme" of matter is for the sake of something. This "extreme of matter" is "nothing else besides" matter" and is opposed to the elements in which the "that for the sake of which" is present but extremely unclear and unable to be formulated into a precise account. (389b25-a20) The passage, however, is quite difficult and a matter of some scholarly controversy.

[71] For this phrase, see, e.g., *Posterior Analytics* I.2 71b32-a6.

as analogous to flesh. As a geometrical object—something that "exists by abstraction", the line is not a perceptible object, and the extension which Aristotle treats as its matter is not matter in the bodily sense that hot, cold, wet, and dry are.

What, then, are the respective roles of perception and νοῦς in this case? Extension is matter or at least relevantly matter-like in the sense that is crucial to this passage: it is perceptible, for magnitude and figure are among the common sensibles.[72] The line (and geometrical objects generally) is a special case deserving of separate mention, because it "exists by abstraction"—i.e., it is a certain extended magnitude mentally separated from the οὐσία in which it inheres and considered as an οὐσία in its own right. This abstracting is an action of νοῦς, and the line *qua* line is an object of νοῦς rather than of perception. *Qua* length (or extension), however, the line is there to be discerned in the perceived or imagined object from which it is abstracted. The abstraction is just the taking a specialized intellectual perspective on this perceptible length, but it does nothing to eliminate the perceptible character of the extension or to liberate the thoughts of the line from their dependence on the perceptive faculty. The essence of the line remains some sort of λόγος (perhaps "duality") that stands to (perceptible) extension as the flesh's λόγος stands to the hot and cold.

Likely there is another sort of non-perceptually discerned object the discernment of which is nonetheless perceptually based. I have in mind objects that are discerned by inference from their effects. Examples in Aristotle's thought include the movers of the many celestial spheres and the (never observed) process of spontaneous generation.[73] In such cases the essences would be the deeper causes of the features by which the things were initially identified. Spontaneous generation, for example, would initially be identified as the coming to be of an animal from inanimate matter. Its essence would be the cause of this, say the intensification by ordinary heat of special "vital heat" in the "earthy water" resulting in the formation of an increasingly earthy bubble that hardens into a shell or skin around the vitally hot material.[74]

In however many ways it might do so, and however many intermediate steps might be involved in a given case, it is clear that (on Aristotle's view) thought depends in some way on perception for its ability to represent the world. Functions of the perceptual faculty, which trace

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[72] *De Anima* III.1 425a14-b11.
[73] *Generation of Animals* III.11
[74] On this possibility, see Gotthelf 1989.

back ultimately to acts of perceiving, partially constitute νοῦς's ability to represent anything that is not identical to its essence—i.e. anything other than the indivisible objects we discussed in §3.1.3 and §3.2.2. And there is reason to think that perception plays a crucial role in the cognition even of these objects, for we saw earlier that they are g-known through the contrast with the things that are derivative on them. If this is right than our cognitive contact with any object of thought—our ability to represent it at all—occurs through perception, and in particular through perception of its effects. This may come as a surprise, since in §3.2.2, we concluded that all representation depends on the ἀδιαίρετον γνώσεις of ἀδιαίρετον objects. I argued in the last section that these γνώσεις are the principles of ἐπιστήμη. It follows from this that the objects of these γνώσεις are causes, in which case thoughts of effects will depend on knowledge of their causes, whereas we just above concluded that thoughts of causes depended on (perceptual) knowledge of their effects. We begin to see how these seemingly contrary claims can be harmonized in the next two sections, and will return to the issue more directly in Chapter 4.

First, there is another issue to address. We have not heard much about the universality of thought, and in particular whether the object discerned by perception and their intellectually discerned essences are universal or particular.

3.3.2 The universality of thought

When *De Anima* III.4 speaks of perception discerning flesh, it presumably does not mean that the *kind* flesh (or any other universal) is discerned by perception, rather what one perceptually discerns is a particular sample of flesh, which one perceptual faculty discriminates from other objects by differences in its perceptible qualities.[75] It is νοῦς that then discerns the sample's *being flesh*, its "being what it is"—its essence. But, then, is this essence universal or particular? If it is particular, then when does the universality of thought enter? And if it is universal, then it seems that, contrary to my argument in my previous chapter, there is a universal object to be discerned in the particular sample of flesh.

[75] *Posterior Analytics* I.32 tells us that "it's impossible to perceive what's universal and applicable to all, for it's not a *this* nor a *now*" (87b30-31) and that "to perceive is necessarily to perceive a particular" (87b37-8), and I.8 says that "perception is of particulars"(81b6) On II.19's seemingly contrary statement that perception is "of a universal", see §4.1.1

In answering these questions, it is instructive to remember the lesson of *Metaphysics* M.10 (discussed in §2.5 above). There Aristotle distinguishes ἐπιστήμη in actuality from ἐπιστήμη in potentiality, stating that while the latter is universal and of universals, the former is particular and of particulars. Ἐπιστήμη is a sort of γνῶσις of derivative objects that is based on νοῦς of their principles, and in setting forth the puzzle solved by the distinction between actuality and potentiality, Aristotle tells us that the objects of ἐπιστήμη will be universal if the principles are universal and particular if the principles are particular. Presumably then γνῶσις of principles also, which is νοῦς, is universal when it is in potentiality and particular when in actuality. If so, and essences are the objects of νοῦς, then when one is actively discerning the essence of a perceived particular, one will be discerning its particular essence, but the grasp of this essence that one retains will be a single universal grasp of the essences of anything of its kind.

The distinction between actual and potential γνώσεις appears in the *De Anima* as well. In III.8, we are learn that

> E-knowledge and perception are divided to correspond to the objects, the potential to the potential, the actual to the actual. (431b24-6) [76]

The function this claim serves in the argument makes it clear that Aristotle is here identifying the potentials for perception and ἐπιστήμη with the parts or faculties of the soul by which we perceive or e-know. Indeed he does not think that there is any more proximate potentiality to

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[76] I quote the passage in a slightly modified version of Hamlyn's translation, though I do not think that it is quite correct. In his translation, the passage says that potential γνώσεις (of both sorts) correspond to potential objects and actual γνώσεις to actual objects. I think that Aristotle's Greek commits him to this but that this is not what it actually says. The text reads as follows:

> τέμνεται οὖν ἡ ἐπιστήμη καὶ ἡ αἴσθησις εἰς τὰ πράγματα, ἡ μὲν δυνάμει εἰς τὰ δυνάμει, ἡ δ' ἐντελεχείᾳ εἰς τὰ ἐντελεχείᾳ· (431b24-6)

Hicks, Smith, Hamlyn, and Apostle all translate the "εἰς" with "corresponds to" or some equivalent, but in its first occurrence, and likely in the later ones as well, it surely goes with the verb "τέμνεται". The most natural way to understand this verb-preposition pairing is "cut into", and this is clearly what it means in all its other occurrences in the corpus (*Physics* 250a18, *De Caelo* II.4 286b31, *Generation and Corruption* II.3 330b18, *Metaphysics* M.6 1080b29). Of course, it is odd to say that "ἐπιστήμη and perception are cut {i.e. divided} into the objects", which is presumably why translators have resorted to phrases like "divided to correspond to their objects", but it is not clear to me that Aristotle's words can bear this meaning, and he has a reason to make the odd statement which is the more natural interpretation of his words. The immediate context is that he is trying to determine the way in which the soul is all things. Perception and ἐπιστήμη serve as a middle term between the soul and objects. All things are knowable by one γνῶσις or the other, and the γνῶσις is identical with its object. The (relevant part of) soul is the γνῶσις in actuality rather than in potentiality, so Aristotle divides the γνώσεις (=objects) into actual and potential and potential objects (=γνώσεις). He then identifies the parts of the soul with the potential objects, thus establishing the way in which the soul is all things. (He then qualifies this by saying that it is merely the forms of the things.)

actually perceiving than the faculty of perception. III.4 describes this as one of the ways in which the faculty of thought differs from that of perception:

> When it {viz. νοῦς} has become each thing, as one e-knowledgeable (ἐπιστήμων) in actuality is said to do (and this happens when he can actualize his potentiality by himself), even then it is {each thing} potentially in a way ({though} surely not like before he learned or discovered), and then it is able to think by itself. (429b5-9)

It is this potential that corresponds to *Metaphysics* M.10's ἐπιστήμη in potentiality. Though the function and immediate context of III.8's mentions of the respective objects of actual and potential ἐπιστήμη requires a focus on the more remote potentiality, which is the faculty of thought, III.4 forms part of the broader context for the claim that there's a correspondence between levels of actuality of γνώσεις and levels of actuality of their objects, and I see no reason, to constrict the scope of this claim to exclude the more proximate potentiality that exists only in the case of intellectual states. Moreover, given Aristotle's general scruples about inferences involving relative terms (such as thought and thinkable), we must take the claim to apply, absent specific reason not to.[77]

I take Aristotle's position, then, to be as follows: as the faculty of sight stands to color in general a particular exercise of sight stands to the particular color seen; and as the faculty of ἐπιστήμη stands to what is e-knowable, the ἐπιστήμη in potentiality that triangles have an angle sum equal to that of two right angles, stands to triangles in general, and a particular exercise of this ἐπιστήμη stands in this same relation to some particular triangle.

Notice, that like thought, perception in potentiality is of a universal—viz. the universal perceptible, and each particular sense-faculty is of some narrower universal: sight is of the visible, or more specifically of color. But this doesn't mean that we in any way perceive universals. It just means that what corresponds as an object to the faculty of perception is the whole range of perceptible objects and what corresponds as an object to sight is color. What one perceives is always some particular thing, and what one sees is always some particular color.

There are two related differences between the way that perception in potentiality is of a universal and the way in which thought in potentiality is of universals. We have already touched on the first of these when we observed that in the case of thought, unlike in the case of

[77] On relative terms, in general, see *Categories* 7. The specific cases of e-knowledge/e-knowable and perception/perceptible come in for discussed at 7b23-a12. Many instructions concerning the use of relatives in reasoning can be found in *Topics*. See, for example, II.8 114a14-25 and IV.4, V.6 135b16-26, and VI.8.

perception, there is a state between the faculty and its full actualization—something which counts as an actuality relative to the faculty and as a potentiality relative to the full exercise. Because of this, there are such things as thoughts and ἐπιστῆμαι in potentiality, whereas there are no perceptions in potentiality (unless by this one means the several senses or the perceptual faculties of different animals), there is only the single faculty of perception on the one hand, and the many acts of perceiving on the other. Whereas the faculty of perception has the universal perceptible as its object and the faculty of thought has the universal thinkable as its object, these many thoughts and ἐπιστῆμαι in potentiality have as their objects the many universals whose names do not make reference to our cognitive faculties. Thoughts about triangles as such have the universal triangle as their object, and thoughts about men as such have the universal man, etc.

However, as I argued earlier (in §2.3.3 and §2.5), there need not really be any such things as "the universal man" and we've seen Aristotle tell us (*Metaphysics* Λ.5 at 1071a22-3) that there aren't any. Rather, for a thought about men as such to be about the universal man is for it to be a δύναμις to have particular thoughts about particular men, in just the same way that sight's having color as its object amounts to its being a δύναμις for seeing particular colors. Color, of course, does exist in way as a sort of continuum or axis along which the many colors vary from one another, and likewise "man in general" might be said to exist as a continuum or interrelated set of continua, but general thoughts about men are not about this continuum as a continuum any more than our faculty of sight somehow interacts with the color spectrum as a whole when our eyes are closed. Rather, as the faculty of sight is an ability to see any color in the spectrum, so our general thoughts about men are abilities to think particular thoughts about any man.

The second difference between perception and thought that I alluded to earlier concerns the relation of the fully actualized state to the universal. We can approach it through a comment from *Metaphysics* M.10:

> For e-knowledge is twofold, as e-knowing also is: one is in potentiality and the other in actuality. While the potential, being as matter, is universal and indefinite and is of the universal and indefinite, the actual is definite and of the definite, being a certain this of a certain this. However, sight sees the universal color incidentally, since this color, which it sees, is a color, and what the grammarian contemplates, a certain alpha, is an alpha. (1087a15-20)

The universal cannot be incidental to thought in actuality in the way that it is to perception in actuality. Before turning to the case of thought, it is important to get clear in the case of perception just what it is that Aristotle is claiming is incidental. First, and most obviously, it

cannot be incidental that the color seen is a color, since color is the kind of the various colors. Second the color's being a color is not incidental to sight's seeing it; indeed it is precisely because it is a color that it is seen, since color is the proper object of the faculty of sight. What is incidental is the universal's status as an object of the perception. When one sees a certain shade of red, it is only incidentally that one sees color or the perceptible.

By contrast, when a grammarian e-knows in actuality of the alpha in an occurrence of "διδάσκει" that it has an acute accent, it is not incidental that this alpha is an alpha or a vowel. Notice that the passage from M.10 does not say that the grammarian contemplates the universal alpha only incidentally, though it might reasonably be taken to imply this. I think Aristotle's point in the sentence beginning "however" is to suggest how universality can be involved even in actualized ἐπιστήμη. The objects of determinate γνώσεις do fall under (indeterminate) universals, so that, even perception can be said to perceive universals, though in this case only incidentally. In the case of ἐπιστήμη, however, it is precisely through the determinate objects falling under the universal that they are known. The grammarian e-knows the alpha in "διδάσκει" to be accented only by regarding it as an alpha and as a short vowel in the penult of a recessively accented word with a long ultima.

It is precisely *qua* the alpha's falling under the universals it does that the grammarian e-know it, and the same thing will hold in any case of ἐπιστήμη, since ἐπιστήμη is demonstrative γνῶσις and

> a deduction does not come about that this triangle has two rights unless every triangle has two rights, nor that this man is an animal unless every man is an animal. (*Metaphysics* M.10 1086b34-37 cf. B.4 999a24-29)

Though the actualized ἐπιστήμη (and the actualized νοῦς) is particular and of a particular object, it apprehends this object as following from its causes (the γνῶσις of which is νοῦς), and this logical relationship of "following" holds between the object and its causes only insofar as both fall under the universals they do. These universals are determinables and the way they are determined in the particulars is incidental to the relationship of "following" that underwrites the ἐπιστήμη.

This point can be made clearer by analogizing the universals, which are intelligible matter, to perceptible matter. If a man is hit on the head by a falling vase, the vase is the cause of his injury, but it fell and injured him not insofar as it was a vase, but insofar as it is made of clay and thus is heavy; had the clay comprising it been shaped into a ball rather than a vase, it would

have still fallen and injured him. Likewise, when an isosceles triangle is shown to have an angle sum equal to that of two right angles, this is shown through operations that could still be performed on the triangle were it scalene. Thus Aristotle would say that the vase fell *qua* clay (or *qua* earth) and that the isosceles triangle has the angle sum it does *qua* triangle.[78]

The difference between the two cases is that the clay is a real existent that can take on the alternative forms of the vase and the ball, whereas there is no triangle that is capable of taking on the alternative forms of isosceles and scalene, except in thought. What exists independently of thought is: (1) all the different triangular shapes of different objects and abilities of objects to take on different triangular shapes, (2) the availability of a single account embracing all these triangles, and (3) the facts that all and only the things embraced by this account have an angle sum equal to two right angles and that each of these things can undergo the same geometrical operations, which make this equality apparent.

It so happens that in the case of triangles there is a literal equality of angle sum, which follows from an equality in the number of lines and angles. In Chapter 2, I argued that there needn't be any equality—any determinate identity—between all a concept's instances and that, in the case of kinds and forms at least, universality consisted in determinability rather in the sharing by the instances of determinately identical characteristics. In deductions involving the sorts of universals I focused on there all the terms would be determinable—e.g., "birds have wings because they need to fly", where each of "bird", "wing" and "fly" embraces instances that differ from one another in the more and the less of the very characteristics in virtue of which they constitute a single kind. Notice that determinability does play some role even in the triangle case, for the details of the geometrical operations by which one shows a triangle to have an angle sum equal to that of two right angles are determined differently for different triangles. (Where, in the case of one triangle one of the lines is extended to form a new acute angle with the base, in the case of another, the corresponding line is extended to form an obtuse angle.)

Moreover, at a deeper level, even the account of triangle involves determinability; for "line" figures in the definition, and, as Hume observed:

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[78] See *Posterior Analytics* I.24:

> If indeed triangle extends beyond {isosceles triangles}, and the account is the same, and triangle is not homonymous, and the {angles' equaling} two {right angles} pertains to every triangle, then it is not the triangle *qua* isosceles but rather the isosceles *qua* triangle which has these angles. (85b9-13)

> 'tis evident at first sight, that the precise length of a line is not different nor distinguishable from the line itself; nor the precise degree of any quality from the quality. (*Treatise of Human Nature* Book I, Part I, Section VII)

Hume takes this to exclude the possibility of any "idea" of line "separated" from some precise length—i.e., no concept "line" arrived at by an act of context-omission which disregards the precise length of a line and focuses on some distinct characteristic that it shares with all other lines. In this Aristotle would agree, but he would disagree with Hume's conclusion that that a line and its precise length are "consequently conjoined with each other in conception". For Aristotle thinks we are able to make objects indeterminate in thought. We can see this in the first chapter of *On Memory and Recollection*:

> We have spoken about φαντασία earlier, in *De Anima*, and there is not thinking without a φάντασμα—for the same affection attaches to thinking and diagramming; for in the latter case, making no use of the triangle's being of a determinate size (ποσὸν), we nevertheless draw it determinately with respect to size, and it's the same way with the thinker: if he thinks {something that is} not sized, he sets a sized thing before his eyes, but thinks {it} not *qua* sized; but if {its} nature is amongst the sized things but indeterminate, he sets {before his eyes} a determinately sized thing but thinks it *qua* sized only. (449b30-a7)[79]

I take it that an example of a non-sized thing about which one might think would be red.[80] In thinking about red—say in considering different theories of how it derives from black and white (as Aristotle does in *De Sensu* 3)—one would need to work with an imagined patch of red, which would have to be some size, but one's thoughts would not be of this patch *qua* this size but of it only *qua* being red. Triangles, lines, and angles would be examples of indeterminately sized thought objects. In thinking of triangle one would need to picture a triangle made up of lines of determinate lengths that meet at determinate angles, but one could think the lines and angles *qua* lines and angles only, and one could think the triangle *qua* composed of lines of indeterminate lengths meeting at indeterminate angles.

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[79] Cf. *De Anima* III.7, where we are also told that "the soul never thinks without a φάντασμα" (431a16-17) and that "the νοητικὸν thinks the forms in φαντάσματα" (431b2). Also significant is *Posterior Analytics* I.31's comment that "while one sees separately in each {case}, one n-thinks simultaneously that it's so in every {case}" (88a16-17).

[80] Of course the red surface has a size, but this belongs to the red only incidentally, as musical belongs to white when a white man is musical. Properly speaking, it is the surface to which both the red and the size belong, just as it is the man to which the white and the musicality belong. This is more obvious in the case of characteristics that cannot be literally pictured, for example being musical or good. In one respect, such characteristics would be a better examples than red, because you can't envision an expanse of musicality or goodness, but (for this same reason) it is harder to see of what use φαντασία could be in thinking about these things than it is in the case of red. For this reason, I chose a perceptible quality as an example here; I discuss cases of more abstract thought below.

There is a significant difference between these two cases. One thinks the imagined red patch *qua* red rather than *qua* possessing some other feature wholly distinct from its redness. In the triangle example, the characteristics of the image present and absent from the thought are not distinct in this way. Instead of abstracting away from the triangle's size to focus on some other feature, one regards the size as indeterminate. The equivalent operation in the case of red would be picturing a determinate shade of red but thinking it *qua* red only, and presumably this action is involved in having thoughts of red as such or color as such. It is just this sort of de-specifying operation that Aristotle needs to move from determinate perceptions to determinable concepts, and presumably this is the same operation that I described in §2.3.2 as decomposing something into its intelligible matter, and in §3.1 as intensional division.[81]

What should be most striking in the present context, however, is that this de-specifying is part of fully actualized thinking. The language of setting something before one's eyes and thinking it a certain way makes it clear that Aristotle's subject is not thoughts in potentiality but episodes of thinking, which *Metaphysics* M.10 tells us are determinate and of particulars. I have been arguing that such thoughts must involve regarding the particulars as falling under universals, and in the present passage we can see that this is the case. In order to think of an indeterminately sized object, one imagines a determinately sized one, and thinks same object *qua* sized only. The object of the thought then is the fully determinate object.

Aristotle does not tell us what it is it to think this very object *qua* sized only, as opposed to merely using it as a sort of visual aid for thinking of some other object of indeterminate size, but it is not hard to see what the answer might be. First, there is no such thing as an actual object of indeterminate size to think of. There is a potential object of indeterminate size—an intelligible matter, but this is not a mind-independent capacity to *be* any size whatsoever. It is, rather a way of describing the complex fact that, due to certain facts about sizes and about us, we are able have certain thoughts in potentiality that can be actualized into thoughts of objects of any size. To think in actuality of a particular thing *qua* sized then, could be to actualize one of these thoughts-in-potentiality into a thought of that particular—or, put another way, to regard the particular as an actualization of the intelligible matter size. This means considering the particular

[81] Likewise, the mental operation involved in thinking the imagined sized object "not *qua* sized" may be the operation of abstracting that is involved in thinking of mathematical objects, whereby one separates in thought certain determinate characteristics from an οὐσία from which they are inseparable in reality.

in light of its commensurability with the other sized things—as something that could be de-specified into the matter which could then be re-specified into a particular of another size.

If this interpretation is correct, then the universality of thought consists in its taking a certain comparative or assimilating perspective on particulars, and a concept (i.e., an undivided thought in potentiality) is an ability with regard to a set of commensurable objects to consider any of them in light of its convertibility-in-thought to any of the others. Putting together this point with the conclusion of our §3.2.4, this ability must somehow consist in or amount to a γνῶσις (in potentiality) of the instances' essence—i.e., of the cause of the characteristics by which they are initially discerned. In the case of the proper objects of a single sense modality, these two strands tie together nicely, if (as I suggested earlier) to grasp their (formal) causes is simply to locate them along a continuum defined by the contraries with which the sense is concerned, since to do this is to relate them to all the other points along the continuum.

In other cases, the essence will be the (often final) cause that unites the ranges into which the instances' characteristics fall along multiple continua. Here the relation between the causal knowledge and the ability to assimilate the instances to one another in thought is more complex. First, since (according to Aristotle) it is only by thinking universally that we can grasp causal connections, discerning the unifying cause must involve thinking of the effects universally. Second, we can see how knowledge of this cause will enable us to think universally of the unified whole. The causal connections between instances' commensurable characteristics along different continua will result in (at least many of) a given instance's characteristics being shared by the other instances *mutatis mutandis*, with the necessary changes in one characteristic being determined by differences along some other continua and the causal relations between them. For example, a duck, like a hawk, will have a beak, but its beak will be wider, owing to the different uses it is put to, because of the duck's different lifestyle and habitat. Knowledge of the causal relations involved here will facilitate the de-specification in thought of any knowledge about the hawk's beak into general knowledge about beaks. So causal knowledge facilitates universality.

This last point sheds light also on why it is that we need a φάντασμα to think of an individual (and thus to think in actuality). The causal connections between an instance's many characteristics hold insofar as each characteristic falls within a range, rather than insofar as it has its own determinate identity. This is why taxonomic division has to terminate in lowest "uncuttable" forms rather than proceeding all the way to the individual. The individual as such

cannot be an object of thought because, when considering its characteristics in their full determinateness, one will find no connection between them, so one will no longer have *one thing* in mind that could serve as a subject or predicate. Individuals are numerical unities, and in order to think of them, one would need to be able to represent them as such. This is the role of φαντασία: because the imagined object is an individual, its determinate characteristics form a numerical unity.

Before closing the present section, there are two remaining concerns I want to address about thought's universality and its relation to perception. The first of these concerns the differences between Aristotle's position and that of the British Empiricists, and the second concerns the doctrine that all thought involves φαντάσματα. The first of these concerns is as much a question about the British Empiricists as about Aristotle, but I am interested in it here only insofar as the comparison helps to bring out interesting features of his position, so my treatment of them will be cursory and fairly conventional. In particular, I will not stop over the differences between Hume's and Berkeley's positions.[82]

I wrote earlier that Aristotle differed from Hume in maintaining that we can make objects indeterminate in thought, but the account I gave of Aristotle's view of the universality and thought may sound quite like Hume's and Berkeley's. Both also hold that a thinker must always contemplate a determinate image and that, by not attending to its determinate features, he can reach conclusions that can be applied to indefinitely many particulars. Indeed, like Aristotle, Berkeley discuss the example of a geometrical proof performed on a drawn or imagined "isosceles rectilinear triangle whose sides are of a determinate length," can yield conclusions applicable to all triangles, as long as "there is not the least mention made" in the proof of these particulars".

> Which sufficiently shews that the right angle might have been oblique, and the sides unequal, and for all that the demonstration have held good. And for this reason it is, that I conclude that to be true of any obliquangular or scalinon, which I had demonstrated of a particular right-angled, equicural triangle; and not because I demonstrated the proposition of the abstract idea of a triangle. And here it must be acknowledged that a man may consider a figure merely as triangular, without attending to the particular qualities of the angles, or relations of the sides.

[82] The most significant of these differences concern the role of words in the ability of a single determinate idea to represent many similar things which differ from it in detail. Berkeley (*Treatise*, Introduction, §12) speaks of the generality of the words as a consequence of the generality of ideas, whereas Hume (*Treatise,* I.I.VII) thinks linguistic habits facilitate the use of one idea to represent others.

> So far he may abstract: but this will never prove that he can form an abstract general inconsistent idea of a triangle. In like manner we may consider Peter so far forth as man, or so far forth as animal, without framing the forementioned abstract idea, either of man or of animal, in as much as all that is perceived is not considered.[83]

Hume speaks of the "custom" and "habit" of applying the same name to different resembling objects which results in all of these objects being present "in power" to the mind when it thinks upon any one of them, so that we "keep ourselves in readiness to survey any of them as we may be prompted by a present design or necessity".[84]

Berkeley and Hume's "ideas" correspond to Aristotle's φαντάσματα, so in denying the existence of "abstract" or "indeterminate" ideas, they are denying the existence of φαντάσματα that are indeterminate (e.g. that are "sized only" without having a determinate size) or that entirely lack features inherent to images (e.g., an idea of red thing without size). Thus far they have no disagreement with Aristotle, and they agree with him too that we can make use of determinate φαντάσματα in thought in such a way as to enable our conclusions to apply equally to a diversity of differing objects that are similar in relevant ways to the imagined particulars. The difference lies in that, for the Empiricists, all thought or knowledge is, in the first instance, of some imagined particular; it is then secondarily of anything that is noticed to resemble it in such a way that the same knowledge can apply to it. (For Hume, especially, developed habits connected with the use of words facilitate quick notice of the relevant resemblances.[85]) When one knows something of a given triangle *qua* (or "so forth as") triangle, all this means for the Empiricists is that the way in which one knows it—the proof—makes no use of features that

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[83] Berkeley, *Treatise Concerning the Principles of Human Knowledge*, Introduction, §16.

[84] Hume, *Treatise of Human Nature,* I.I.7.

[85] Aristotle would not count the kinds of psychological states and operations by which Hume explains how knowledge of one idea gets transferred to others, as cases of thought at all. They are, rather, examples of what he calls experience (ἐμπειρία), the associational grouping of memories of similar objects which makes possible the *ad hoc* application of things known about one object to some of the others, and is the penultimate step on the way to νοῦς of a universal, but which cannot itself afford knowledge of necessary causal connections. (I discuss ἐμπειρία below in §4.1.2.) Hume's position is, by Aristotle's lights, that human cognitive development is arrested at this stage. It is fitting, then, (and only partially accidental) that Aristotle's term for it is the etymological root of our name for the school of epistemology that Hume epitomizes. "Empiricist" and "empiricism" trace back to a school of Greek physicians in the third century BC who called themselves ἐμπειρικοί because they rejected the search for a causal theory in medicine and rested content with a body of experiential knowledge about the courses of diseases and the effects of different treatments (Allen 2001 89-97, Pellegrin 2006 671-682). The earliest occurrences of "empiricism" reported by the *Oxford English Dictionary* (starting in 1657) denote this same medical methodology. From here the term seems to have expanded to analogous methods in other fields before (likely due to the influence of Kant) coming into use as a name for philosophical tradition exemplified by Hume and Locke (himself an empiricist physician).

differentiate this triangle from others, so that the same proof could as easily be performed on any other triangle, and therefore the conclusion can be applied to any other triangle.

For Aristotle, by contrast, universality precedes proof. One can only prove (and thereby o-know) of a given triangle that it has (say) an angle sum equal to that of two rights insofar as one thinks of it as a triangle.[86] And the result of this proof is not a conclusion about this figure that can then be applied to other triangles, but rather a conclusion that holds in the first instance of triangle generally and is seen to hold of this figure only insofar as it is a certain triangle. Moreover, for Aristotle, when knowledge of triangles is in potentiality—when it is held rather than exercised—it is not associated with any determinate φάντασμα, but is an indeterminate matter that has the whole spectrum of possible triangles as its object and can be actualized into a thought of any determinate triangle.[87] The generality of thought, for Aristotle, therefore is not a matter of one imagined particular's standing for another, as it is for the Empiricists. Rather, on his view, there are psychological states that are determinable with respect to their content and so can be realized in contrary ways, just as, in nature, there is matter, which, in its own right is indeterminate and so can realize contrary forms. And for an imagined determinate figure to be

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[86] One may also be able to deduce this of the triangle while considering it as an instance of some narrower universal, but not while considering it under no universal at all.

[87] There is, however, some obscurity about the manner in which these concepts exist when not in actuality. They cannot simply be stored in memory because "there is not memory even of thinkables without a φάντασμα, so, while it is νοῦς's incidentally, in itself it is the first senses'" (*On Memory* 1 447a13-14). Especially given Aristotle's more general account of memory as φάντασμα retention, this seems to mean that the memory of a thought-object is a φάντασμα and belongs to the perceptual part of the soul. But, if so, it is doubtful that the memory can be indeterminate, or identical to the thought in potentiality. Rather there must also be some additional state of the soul in virtue of which it is disposed to organize and regard the remembered content in a specialized way. This may be a state of the affected νοῦς, understood as a distinct faculty from perception. Alternatively, if (as I suggested above at §3.3.1, n. 60) the affected νοῦς is merely the perceptual faculty insofar as it can serve as matter for the productive νοῦς, then the concept will have to consist in some sort of special (constellations of) φαντάσματα created by the productive νοῦς, which, though they belong to the perceptual part of the soul, are specially suited to be re-vivified into actual thoughts by the productive νοῦς. It helps in seeing how this might be so to note that words are perceptible things, which can be stored as φαντάσματα and might, when remembered in connection with φαντάσματα of sample thought-objects help us to recreate the thoughts about those objects. (Though memory of words cannot be sufficient for thought, because we know from *Nicomachean Ethics* VII.3 that it is possible for someone who has knowledge to say the words that encode it without exercising the knowledge as drunks "recite the verses of Empedocles" [1147a19-24].) Also Aristotle speaks frequently in *On Memory* 2 of imagistic mnemonic systems that were common in the ancient world, and in *Prior Analytics* I.27-30 and throughout the *Topics* he uses language likely derived from such practices to describe how one should organize one's knowledge of terms so as to facilitate deduction. (See Sorabji 1972 22-34.) This second more reductive interpretation of what Aristotle means by the affected νοῦς and consequently of the δυνάμεις in which concepts consist makes Aristotle closer to Hume than the first interpretation, but the difference is still pronounced. Even if concepts are in some sense reducible to complex conditions of the perceptual part of the soul, each concept is still a distinct enduring γνῶσις that has no analog on Hume's view, and these γνώσεις are to be understood final causally, relative to the activities they make possible, rather than efficient-causally as the result of psychological processes of association and the like.

thought of *qua* (or "so forth as") triangle is for the thought of it to be an exercise of this indeterminate state, just as for a particular action to be virtuous is for it to be an exercise of a virtue.[88]

So much then, for Aristotle's relation to Hume and Berkeley; I turn now to his view that all thought requires a φάντασμα. We have encountered this general claim in several times now, and we have seen some of the reasons why he thinks it is so. First, if a concept is γνῶσις of an essence, and we were right in §3.3.1 that an essence is a cause of perceptible characteristics and is and grasped as their cause, then the concept itself is tied to the content that is in the jurisdiction of the perceptual faculty, so we can see why thought will require the exercise of this faculty to make this content available. Second, if, as I have argued earlier in this section, a concept is an ability to regard determinate perceptual contents as falling along determinable continua, it is clear that its exercise will require perceptual content to work on. We have, then, two ways in which thought might require φαντάσματα and I suggested earlier ways in which the abilities to regard objects' characteristics as falling under determinables and as effects of causes might be implicated in one another so that these two strands of Aristotle's view could cohere into a whole.

However, though each strand may be clear enough when we consider cases of thought that involve either directly perceptible objects (like flesh or noses) or geometrical objects, which have directly perceptible characteristics, it remains somewhat mysterious how either could work in the case of more abstract thought (using "abstract" in its current sense, rather than in Aristotle's), so it is unclear what role φαντάσματα are needed to play in thoughts of (say) the good, or being *qua* being, or potentiality and actuality, or God, or the Principle of Non-Contradiction. It is easy to picture things that are caused by some of these objects, but the causal chains will be quite remote, and it is not obvious of what use the images would be the thought processes, and, in any event they are not all causes—at any rate, non-contradiction and being are not. Similarly, for some but not others it is easy to picture determinate things that fall under the concepts. Everything is, after all, a being. But, again, it's not entirely clear what use an image of some random being would be in thinking of being as such.

Aristotle does not say enough about the mechanics of thought about such objects for us to be able to find or infer any determinate answer from the text, and one can only surmise. Of course, language is used in thought of these abstract things, and since words are sensory in form,

[88] For this point about virtue, see *Nicomachean Ethics* II.4 1105a26-33.

they likely require φαντάσματα to hold in mind; but this is an inadequate explanation, because it explains too much too easily: it would apply equally well to the cases where we have seen Aristotle give other accounts of the role of φαντάσματα in thought.[89] A more promising direction for speculation concerns the role that Aristotle thinks analogy plays in our grasp of these abstract objects and his own pervasive use of (often quite remote) analogies in making abstract points. Consider, for example, his frequent recourse of the analogy to the division of lines into points to illustrate different aspects of thought (which we saw an example of in §3.1.1) or his constant use of the image of the bronze sphere which he regards as structurally similar, in an extremely abstract way, to a startling number of extremely different things. Indeed he sometimes (as in *Metaphysics* H.6) writes as though the back of a difficult puzzle is broken merely by relating it to this image, with its rich hylomorphic connotations.[90] Aristotle is, in short, an overwhelmingly analogical thinker, and it would not be surprising if he thought that is was only though this method that one could think about broad abstractions. Nor is this view implausible in its own right, especially if one thinks (as Aristotle does) that analogy is (or is central to) the relationship in virtue of which the instances of extremely abstract concepts cohere into universals and that we have perceptual access to some of the analogs and no independent access to the others. These concepts are, however, special cases for Aristotle.[91] Kind-concepts are predominant and these are based on more-and-less relations, the role of which as a middle term between φαντάσματα and thought can be inferred from the *On Memory* 1 passage as we did above.

3.3.3 Νοῦς and ἐπιστήμη as the highest degrees of γνῶσις

As a final topic under the heading of concepts as γνώσεις, I return to the point mentioned in §3.2.1, that γνῶσις admits of degrees. Understanding how this is the case, will help us to

[89] On these points, cf. Wedin 1989 249.

[90] The comparison with Plato is also instructive here. He too made pervasive and self-conscious use of analogical reasoning, with images that are dramatic, imaginative, and rich in detail. Aristotle's by contrast are sparse and colorless, bold and imaginative only (though strikingly) in the use to which he puts them. Part of this difference is of course due to the respective genres in which they wrote, and to the fact that Plato was a literary genius where Aristotle was not, but I suspect that part was Aristotle's isolating and adopting the major cognitive function served by Platonic analogy and utilizing it in a form stripped of its literary and rhetorical aspects.

[91] Recall from §2.1.2, that Aristotle does not generally sanction concepts for groups of analogs, though he does in the case of the concepts central to metaphysics.

understand the relation between thought and perception, and set the stage for discussion (in Chapter 4) of how the former arises from the latter.

Aristotle tells us often that some objects are γνωριμώτερον (more g-known) than others.[92] Taken on its own this claim is might mean simply that these objects are more easily or more widely g-known, but Aristotle once speaks of certain γνώσεις as being γνωστικώτερον (more g-knowing) than others (100a11). In isolation, this claim might mean only that the relevant γνώσεις have greater scope and thereby encompass more of the world, and this may be part of what it does mean,[93] but Aristotle also speaks on at least one occasion of these states as being truer (ἀληθέστερον) and more precise (ἀκριβέστερον) (*Posterior Analytics* II.19 100b8, 11). These comparative remarks are made in the course of a denial that there is any state surpassing νοῦς and ἐπιστήμη in precision, truth, or in being g-known, it is clear that νοῦς and ἐπιστήμη are supposed to surpass all other γνώσεις in truth and precision (ἀκρίβεια) and therefore to be the highest degrees of γνῶσις.[94]

Before commenting further on the conceptions of truth and precision at work in this claim, it is necessary to mention an important qualification to the idea that some things are more g-known (and some γνώσεις more g-knowing) than others. When making this claim, Aristotle distinguishes between what is more g-known "by nature" or "*simpliciter*" and what is more g-known "*to us*":

> Things are prior and more g-known in two ways; for prior by nature and prior in relation to us are not the same nor are more g-known and more g-known to us. I call prior and more g-known in relation to us the things nearer to perception, and {prior and more g-known} *simpliciter* the things that are further. While the most universal things are furthest, the particulars nearest, and these are opposite to each other. (*Posterior Analytics* I.2 71b33-a5)

Since the particulars that are g-known in perception are furthest from what is g-known *simpliciter*, perception will be the lowest form of γνῶσις considered *simpliciter*, though there is another respect in which particulars are the most g-known, and plausibly in this respect it will be

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[92] *Posterior Analytics* I.2 72a1-5, *Physics* I.1 184a17-21, etc.
[93] See *Posterior Analytics* I.24 86a11-13.
[94] Presumably νοῦς is the highest degree, with ἐπιστήμη being next because it is a derivative state which depends for its truth and precision on νοῦς. Such non-theoretical γνώσεις as φρόνησις and τέχνη are not in view in the *Posterior Analytics*. These other virtues of intellect are the analogs of ἐπιστήμη in the practical and productive arenas. Like it, they must depend on νοῦς, and therefore they are presumably less true and precise than it. Conceivably they could equal ἐπιστήμη in truth and precision, but as will be clear from what follows, Aristotle thinks that less precision is necessary and possible when one has an eye to action, than when one is engaged in theoretical thought.

the most g-knowing state since the senses are the "the most authoritative (κυριώταται) γνώσεις of particulars" (*Metaphysics* A.1 981b12).

The idea that there are degrees of truth is not a recurrent doctrine in the corpus, so there is comparatively little material to draw on in making sense of it.[95] For this reason, and because I think it has little bearing on the nature of concepts, I will not stop over it here.[96] The idea of degrees of precision, however, is both recurrent and relevant, and this will be our topic for the remainder of this section. Aristotle's two most substantial discussions of it occur in *Posterior Analytics* I.27, where he describes what it is for one ἐπιστήμη to be more precise than another, and in *Nicomachean Ethics* I, which is peppered with comments on the degrees of precision appropriate in different disciplines. I turn now to the two most significant of the *Ethics* passages:

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[95] Outside of *Posterior Analytics* II.19, I have found only one passage in which Aristotle, speaking as an epistemologist or logician, may allow for degrees of truth, and it is ambiguous. In *Prior Analytics* I.27 (43b11) he tells us that the larger a person's supply of premises appropriate to a given problem the more quickly he will reach a conclusion, and "the truer they are the more he will demonstrate" (ὅσω δ' ἂν ἀληθεστέρων, μᾶλλον ἀποδείξει). However, here he may simply mean that a person with a greater number of true premises will demonstrate more, rather than that a person will demonstrate more if each of his premises is truer. In other contexts Aristotle speaks of rephrasing a point so as to make it truer (*Generation of Animals* II.6 742b27, *Politics* IV.3 1290a24), but this is likely a more casual usage, and it sounds quite natural to modern English speakers.

[96] Except in a footnote: On its face the claim that there are degrees of truth suggests a middle ground between truth and falsity by occupying which some propositions can be less than fully true. Aristotle, to whom we owe the law of excluded middle, could not have allowed for any such middle ground. How then are we to understand this claim. If we take "truth" generally to refer to the correspondence between a mental state and mind-independent facts, a distinction between "degrees of truth" could be based on a distinction between types of facts. Some objects are necessarily as they are whereas others could be otherwise. A cognition of the former sort of object might be said to be truer or to have a firmer grip on reality, because the reality on which it has a grip is itself firmer—that is, unlike the objects of contingent truths, it is unable to change (from one time to another) or vary (from one case to another) in such a way as to falsify the cognition of it. (This same point could be made in connection with the distinction between things that hold always and "for the most part".) Another (complementary) way to make sense of the claim is to count one proposition as truer than another if the second obtains only because of the first. This strategy would not be out of character for Aristotle, who treats degrees of existence and goodness in the same manner. (On degrees of existence, see Morrison 1987.) This way of understanding the claim fits nicely with Aristotle's treatment of truth in the *Metaphysics* and the *De Interpretatione,* in both places truth was a matter of connection (and separation) of terms. Given that some terms are connected with others through intermediates, it is natural to regard the intermediates as *more connected* than the extreme terms. On either interpretation, it is not the correspondence between the thought and the object which admits of degrees, but something about the truth-maker. A final way to understand the claim does focus on the correspondence relation. Recall that the possibility of falsehood only arises because of the act of intensional combination. Indivisible thoughts cannot but be true, because they only manage to be contentful by being γνώσεις. Other thoughts inherit their content from these thoughts by means that do not ensure truth. These thoughts may be true as well, but, if so, their correspondence to reality depends both on the correspondence of the indivisible thoughts and on their being formed in a way that preserves this correspondence. Thus, the relation of these thoughts to reality is both less direct and less secure. I favor this last explanation, but the difference between the four is slight, and of little consequence for what will follow. In any case, truth is an issue of the relation in which a cognition stands to real objects, and for the cognition to be truer would be for its objects to be more real or for it to have a firmer grip on them.

> Our account will be sufficient, if it makes {things} perspicuous in accordance with the subject matter; for one should not seek precision in every account alike; just as one should not in exercises of craft. But the fine things and just things about which statesmanship inquires have a lot of difference and variation, so that they seem to exist only by convention and not by nature. And goods also have some such variation, because of the harm that results for many from them; for some have been destroyed because of wealth and others because of courage. So one must be content, {when} speaking about such things and from such things, to indicate the truth roughly and in outline, and, when speaking about things that hold "for the most part" and from such things, {one must be content} to draw the same sort of conclusions. Each of the accounts should also be accepted in just the same manner; for it's for an educated man to seek precision in accordance with each kind to the extent that the object's nature permits. For it's evident that accepting persuasive argumentation from a mathematician and demanding demonstrations from an orator are equivalent (1094b11-27).

> It's necessary to remember what was said earlier and not to seek precision in every {case} alike; rather, in each, {one must seek precision} in accordance with the subject matter and to the extent appropriate to the discipline (μέθοδος). For the carpenter and the geometer seek the right {angle} differently; the former {seeks it} insofar as it's useful for his work, and the latter {seeks} what it is or of what sort (ποῖόν τι); for he studies truth. One should proceed in just the same manner in other {cases}, so that the tangents don't overwhelm the work. Nor should one demand the cause in every {case} alike, rather it's sufficient in some {cases} that the *that* has been shown well (e.g., concerning the principles—the *that* is the primary and the principle). (1098a26-b3)

From these passages, we learn (1) that precise accounts are to be contrasted with rough or outline accounts and (2) that the degree of precision to be sought in a given case depends on (a) the nature of the subject matter (including the degree to which it is possible to form generalizations about it that hold always rather than "for the most part"), and (b) the purpose of the inquiry (including whether one's goal is to use an object for some purpose or to grasp the truth about it). Statesmanship is an imprecise discipline because the nature of its objects (particular actions) does not permit generalizations that hold always. However, some of the objects about which the statesman must know, permit a higher degree of precision than the statesman himself ought to pursue, and he ought not to pursue this more precise knowledge because it is not required for his purpose. A clear example here is knowledge of the soul, which the statesman must study "for the benefit of {his interests} and to the extent sufficient for his inquiry; for further precisification (ἐξακριβοῦν) is, perhaps, more laborious than are his

assignments" (1102a24-26).[97] Similarly, in *Topics* I.1 Aristotle denies that a "precise account" of the forms of deduction is necessary for "the assigned discipline", in this case dialectic, because "descriptions in outline" are sufficient to make one "able to get to g-know each of them in some way" (101a18-24).[98]

The contrast between precise accounts and outlines, the impossibility of precision in domains where propositions hold only for the most part, and the circumstances in which it is superfluous, strongly suggest that precision is a matter of fineness of grain, as does the normal meaning of the word (in Greek as well as English). I think this suggestion is correct as far as it goes, but it fails to bring out an important aspect of precision: that it stems from knowledge of causes. We can see this in the passages from the *Ethics* quoted above. Since, for Aristotle, knowing what something is and knowing why it is are equivalent, in seeking what the right angle is, the geometer seeks its cause whereas the carpenter and the astronomer do not (because "the that" is sufficient for their purposes).[99] This aspect takes pride of place in *Posterior Analytics* I.27, which I quote in full:

> An ἐπιστήμη that is of both the *that* and the *why*, rather than of the *that* in separation from the {ἐπιστήμη} of the *why*, is more precise than and prior to an ἐπιστήμη {of the *that* in separation}, and {an ἐπιστήμη} that is not {said} of a subject {is more precise than and prior to one that is said} of a subject (e.g. arithmetic {is more precise than and prior to} harmonics), and {an ἐπιστήμη that proceeds} from fewer things {is more precise than and prior to one that proceeds} from an additional thing (e.g. arithmetic {is more precise than and prior to} geometry). By "an additional thing", I mean, e.g.: a unit is a positionless οὐσία, but a point is a positioned οὐσία; it is from an additional thing. (87a31-37)[100]

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[97] Cf. I.6 1096b30, where precisification of the various ways in which things are called good is said to be more appropriate to "another philosophy", I.12 1101b34 where precisification of subjects of ἐγκώμια is neglected as "more appropriate to those who've concerned themselves with ἐγκώμια", X.5 1175a29-b24, and X.9 1180b11.

[98] It's worth noting that precision about certain things is required in dialectic. In *Topics* VI.4 students of the discipline are told to precisify the conditions under which something is g-known either *simpliciter* to a particular sort of person, and to make use of this precise knowledge in establishing and refuting definitions (142a12).

[99] On the case of the astronomer, see *Posterior Analytics* I.13 79a3-7. Aristotle's prohibition against seeking for the cause in all cases alike is not wholly distinct from his prohibition against looking for precision in all cases alike, but neither are the two prohibitions wholly identical. The prohibition against seeking further causes applies not only in cases where the *that* is sufficient for one's purposes, but also in the case of a principle, where the *that* is a fundamental fact for which there is no deeper cause to uncover.

[100] Cf. *Metaphysics* M.3 1078a8-10, where we find the same point that more abstract ἐπιστῆμαι are more precise, and E.1 1025b4-8, which says that the causes of more abstract sciences are more precise. The reference to points and units as οὐσίαι might be jarring, but recall that mathematical objects, though not separately or οὐσίαι in reality, are regarded as such in thought.

Here we're given two further ways in which one ἐπιστήμη can surpass another in precision. Both involve the presence of a factor that renders explanations more complex. The "additional things" Aristotle speaks of are either posits (ὑποθέσεις) or things predicated in the definitions of the primary existents posited by the ἐπιστήμη. As such, they are principles and so uncaused causes—basic facts that explanations will have to make reference to and take account of. As the number of basic facts in an ἐπιστήμη increases, increasing complexity becomes possible in the demonstrations. Similar reasoning applies in the case of ἐπιστῆμαι whose objects are predicated of a subject. Because the subject, such as sound in the case of harmonics, will figure in the definition of the ἐπιστήμη's subject (e.g., the harmonies will be defined as ratios *of sound*), it will function as an additional principle, so that these ἐπιστῆμαι come under the head of ἐπιστῆμαι involving "additional things".[101] In support of this conclusion, notice that Aristotle consistently opposes addition (πρόσθεσις) to ἀφαίρεσις which is in different contexts normally translated "subtraction" or "abstraction", and is the term that Aristotle uses to describe how mathematical objects exist by "abstraction" from natural bodies. This abstraction consists in treating quantitative properties, which have οὐσίαι as their subjects, as though they were οὐσίαι in their own right, without subjects.[102] Thus in both sorts of case the more precise ἐπιστῆμαι owe their superior precision to their "explanatory simplicity".

We now have three criteria for precision: fineness of grain, explanatory depth, and explanatory simplicity. How are they related? In particular, are these three independent criteria or are some reducible to others? We saw earlier that a discipline's fineness of grain is determined in part by its objects and in part by its purpose. It may be that the presence of causal complexity in the objects reduces the possible fineness of grain with which they can be known. This is most plausible when complicating factor is physical matter (as it is in the cases of harmonics and the snub), which might be thought to be inherently variable or unstable. Surely it is the presence of physical matter that makes γνῶσις of particulars (such as the practical γνῶσις in which statesmanship and φρόνησις consist) inherently imprecise. (As we saw in §2.4, the differences

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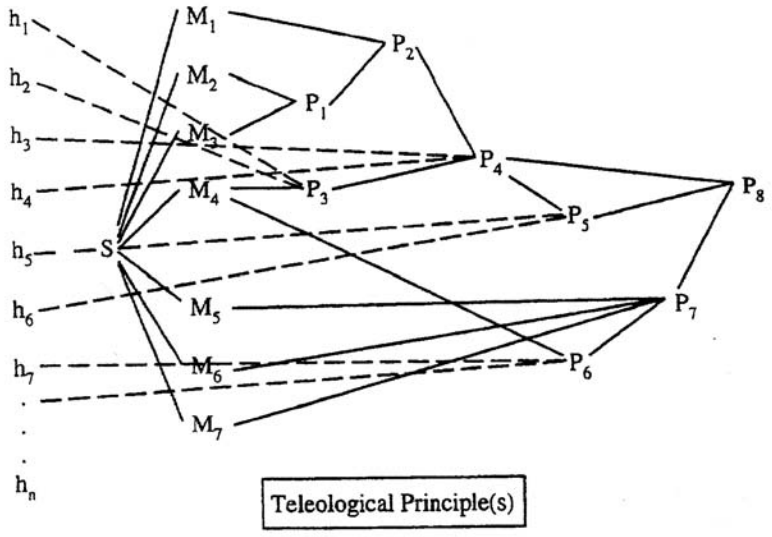
[101] The relation between the two sorts of complication may be even more intimate. Elsewhere (*De Anima* III.4 429b18-22), Aristotle effectively treats geometry (which is here the paradigm of an ἐπιστήμη with additional things) as an ἐπιστήμη whose objects are predicated of a subject, and likely his reason (in *De Anima* I.1 at 402a1-6) for counting the study of the soul as especially precise is that the soul is considered in isolation from the body, which is its underlier.

[102] For discussion of Aristotle's use of "ἀφαίρεσις" and some of its implications for his understanding of abstraction, see Cleary 1985. See Heath 1998 65-6 a discussion of the term in specifically mathematical contexts.

between individuals within the same uncuttable form are primarily explained through material causes.)

We have, then, some reason to think that causal simplicity is not an independent criterion for precision, but only a means to it. However, it is not clear that complicating factors always make fineness of grain impossible. Geometry is more complex than arithmetic, but is it less fine grained? Can't we calculate the length of lines with perfect precision? It is doubtful that Aristotle would have thought so, especially given the geometry with which he was familiar. He is impressed, for example, with the incommensurability of the diagonal, which amounts to nothing more than the impossibility of giving a precise statement of its length in units based on the length the square that it bisects.

Even if the complexity of an object does not prevent us from stating any fact about it with perfect fineness of grain, it may introduce convolutions into the demonstrations through which it is e-known, which might result in the ἐπιστήμη having a more approximate character. This point is brought out nicely by an intimidatingly complex diagram created by Gotthelf (1997) to illustrate the structure of Aristotle's explanation of a zoological phenomenon in the *Parts of Animals*:



The S represents a subject of which the predicates (represented by $P_{1\text{-}8}$) are being demonstrated via the middle terms (represented by $M_{1\text{-}7}$) with the aid of suppositions about matter (represented by $h_{1\text{-}n}$) in the context of general teleological principles (whose global role is

represented by placing them in a box at the bottom of the diagram). The result might be described as inelegant. Many of the predications depend on several independent middles and so resist straightforward analysis into the figures. The suppositions about matter play an inferential role distinct from that of the middle terms, because their subject is not the subject of the conclusion(s) but rather the matter which is (in some sense) its subject.

The sort of complexity illustrated by the diagram is not limited to biology; it results from just the sorts of additions that Aristotle thinks diminish precision. An added item is either something predicated in the definition of the subject of the ἐπιστήμη, in which case it can serve as a middle term, or else it is a further subject of which the subject of the ἐπιστήμη is predicated, in which case facts about it will play the role in the ἐπιστήμη of Gotthelf's $h_{1\text{-}n}$. (It is worth noting that, given the preceding, the complexity cannot be the result of any variability or indeterminacy inherent in biological objects. More plausibly, what we think of as variability in these objects is actually the result of the complex interaction of causal factors.) This complexity prevents us from capturing all the causally relevant factors in orderly syllogisms, which are our means of representing to ourselves the necessity of the effects. Insofar as the demonstrations must be disorderly or imperfect, it stands to reason that there should be a loss of resolution in our knowledge of why the objects have to be as they are. We have, then, reason to suppose that the criterion of explanatory simplicity reduces to fineness of grain, so long as we understand this widely enough to include the fineness of grain with which one can apprehend causal relationships.

What then of the relation between fineness of grain and explanatory depth? For Aristotle these two must, in the end, amount to the same thing, though it may require a few steps to see this. We can begin by observing that γνῶσις of an object, at the intellectual level at least, consists in discerning what it is, and Aristotle identifies what a thing is with its cause:

> For in all of these {cases}, it is evident that the *what it is* and *why it is* are the same. "What is an eclipse?" "Privation of light from the moon by the earth's obstructing". "Why is there an eclipse?" or "Why is the moon eclipsed?" "Because the light is absent, {since} the earth is obstructing". "What is a harmony?" "A numerical λόγος in sharp and flat". "Why do the sharp and flat harmonize?" "Because the sharp and flat has a numerical λόγος". "Do the sharp and flat harmonize?" "Is their λόγος in numbers?" Taking it that it is, "What is the λόγος?" (*Posterior Analytics* II.2 90a14)

The cases to which Aristotle refers represent a complete taxonomy of the possible objects of o-knowledge, which (for him) amounts to a complete taxonomy of existents. So Aristotle is here committing himself to the view that everything is its cause, from which, of course, it follows that to know what anything is to know its cause, a position that Aristotle embraces explicitly: "o-knowing the *what it is* and *why it is* are the same" (90a31).

Now, we turn to two passages in which Aristotle discusses the nature of o-knowing what and why something is:

> Since, as we have stated, o-knowing what something is and o-knowing the cause of whether it is are the same, and the cause is an account of this—that something is—, and this is either the thing itself or something else, and, if something else, either demonstrable or indemonstrable, accordingly: if it is something else and admits of demonstration, necessarily the cause is a middle and the proof is in the first figure (for what's proven is universal and predicable). (II.8 93a3-9)

> While the cause of some things is something different, {the cause} of others is not. So, it's clear that some {cases} of *what it is* are immediate and principles, for which both being (εἶναι) and *what it is* must be supposed or made evident in some other manner (just as the arithmetician makes {his principles evident}; for he supposes both what the unit is and that it is). But for things that have a middle (i.e. for things for which there is some different cause of substance), there is, as we stated, revealing though demonstration, {though} the *what it is* is not demonstrable. (II.9 93b21-8)

Both passages draw a distinction between things that are distinct from their causes and things that are identical with them. We met this same distinction in only slightly different terms in *De Anima* III.4, where Aristotle told us that, though many things are distinct from their essences, some are identical with their essences (429b10-12). Clearly, the things that are identical with their causes are the indivisible objects that we earlier called primaries—the things whose existence as well as their definitions must be posited, and Aristotle tells us as much in the second passage quoted above.[103] We can put these objects aside until the next chapter and focus

[103] In taking the distinction this way, I am agreeing with (amongst others) Aquinas (*Commentary on Aristotle's Posterior Analytics* [Berquist 2007 272]), Scholz (1975 §11), and Barnes (1994 221-2). Ross (1943 633) writes that the distinction is between οὐσία and existents in the other categories. If this is correct, though, it will be because all and only οὐσίαι are identical with their causes/essences. (I do not think this is quite the case, because I think being distinct from one's cause/essence amounts to having an underlier, and that, in some contexts at least, the matter of natural οὐσίαι and the intelligible matter of forms of a kind qualifies. This underlier makes it possible for the object [either in reality or in thought] to fail to *be what it is* while remaining in some important sense the same thing. An object is identical with its essence only if it cannot but be what it is, which means only if it contains no element of potentiality—only if it is one of the indivisible objects mentioned in *Metaphysics* H.6 and Θ.10. However, any given ἐπιστήμη will regard the kind with which it is concerned [and often certain members of this kind] as a

here on the objects that we earlier called divisible and whose existence needs to be demonstrated. Aristotle tells us that to know what such an object is and its cause is to have a middle term for a demonstration of its existence. Aristotle's classic example of this is the case of thunder:

> What is thunder? Fire's extinction in a cloud. Why is there thunder? Because the fire in the cloud is extinguished. Cloud {is} C, thunder A, {and} the B is fire's extinction. B belongs to C, the cloud, (for the fire is extinguished in it), and A, a noise, belongs to this; and indeed B is the λόγος of A, the first extreme. If there is, in turn a middle term for this it will be from the remaining accounts. (II.8 93b7-14)

On a superficial level, thunder is a cloud's being noisy, and as we will see in the next chapter, Aristotle does count knowing this as knowing in one way what thunder is. The cloud's being noisy, however, is divisible into noise's belonging to fire-extinction and fire-extinction's belonging to the cloud. Thus fire-extinction is the cause of the noise and is what thunder is in a less superficial sense. But Aristotle acknowledges the possibility that there may be further middle terms, as surely there are. Clouds presumably extinguish fire because they are moist, and likely extinguishing is noisy because it produces an exhalation of air, so we can elaborate out Aristotle's demonstration as follows:

> Noise belongs to exhalation of air, which belongs to extinction of fire, which belongs to moist, which belongs to clouds.

And we can continue this process until we reach "uncuttable" propositions. We can describe each step in the process as one of going causally deeper, but equally as one of giving a more fine-grained account of what we had said at the previous level. The initial characterization of thunder that we described as "superficial" is imprecise in that it characterizes a complex occurrence without distinguishing the components of the complex. The later accounts specify

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primary, and this will serve as a subject for all its predications; this gives rise to a sense in which, in a given domain and relative to a given ἐπιστήμη, the same things will count as primaries and οὐσίαι.) Deslauriers (2007 56-66) tries to map the distinction on to the distinction in II.2 as 90a2 between being ἐπὶ μέρους and being ἁπλῶς, which she casts as a major theme of *Posterior Analytics* II. In fact, the distinction is made only in passing as a gloss on the "If it is"/"What it is" distinction, which Aristotle is explicitly working in that chapter to undermine. Her interpretation therefore drops the immediate context in which the distinction is drawn. It is implausible on another ground as well. The distinction between "εἰμί ἁπλῶς" and "εἰμί ἐπὶ μέρους" is a distinction between two ways in which something can be said "to be"—it is the distinction between the existential and copulative senses of the verb "to be". In the copulative case, the thing that is said to be ἐπὶ μέρους is the *subject* of the predication, not the predicate. But surely, if one of these two is distinct from its cause, it is the predicate, since even Aristotle's god, which (on anyone's interpretation) would be an example of something that isn't distinct from its cause, can be the subject of predications: it exists ἐπὶ μέρους insofar as it *is* immortal, *is* unmoved, *is* a cause, etc.

more precisely (i.e. in greater detail) just *what this occurrence is*.[104] And this increase in fineness of grain is identical with the increase in causal depth.

We have arrived, now, at a single account of precision that unites the several criteria we saw Aristotle employ for it. Let us recast and expound upon some of our earlier findings in terms of it. Ἐπιστήμη is γνῶσις in the highest possible degree of objects that are not causal primaries, because it is the most precise γνῶσις of them—because the demonstrations in which it consists articulate the complexity of the objects by representing them as a series of terms, one belonging to another. We meet these objects, however, initially in perception, the least precise γνῶσις, which presents the objects to us as (in the language of the opening chapter of the *Physics*) confused (συγκεχυμένον) wholes. We must divide these wholes in order to grasp the elements and relations that constitute them.[105] In some cases, the division in question involves isolating in thought literal components of the objects, which could be physically divided, but at least as often it involves isolating aspects of the objects that cannot exist in isolation. In order to mentally isolate such aspects and to grasp the causal connections between the terms into which the objects are divided we must represent the objects (and their components of various sorts) universally—i.e. in a de-specified manner. Aristotle says little about why this point holds, but he makes it clear that it does—that demonstration and the apprehension of causes requires universals, which stand to particulars as potentiality to actuality—and we have seen indications of how universals play their role. Thought is by nature a universal and causal awareness of the world, and concepts are the terms of which it is constituted.

This, then, is the nature of conceptual cognition according to Aristotle. In the present chapter, we have already made some observations about how it comes to be, but this has not been our focus, and I have said nothing as yet about how a knower might intentionally bring it into existence—about the methods of conceptualization. We will deal with these methods, and with the process of conceptualization more generally, in the next chapter.

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[104] Cf. Gotthelf 1987 211: "Explanation… for Aristotle… in large part consists simply of correctly identifying, in causally fundamental terms, *what* is actually happening".

[105] Byrne 1997 argues that Aristotle understood analysis (from which, of course, the *Analytics* takes its name) to be the untangling or articulating of a confused whole ultimately into an ἐπιστήμη. If, as I think, he is correct, then analysis and "precisification" name the same process, though from different perspectives.

4.0 ARISTOTLE ON CONCEPTUALIZATION

Our subject in Chapter 2 was Aristotle's view of the nature of universality and the ontological basis for concepts. I argued, against the standard view, that he viewed concepts not as grasps of mind-independent universal objects, but as universal thoughts ranging over classes of instances and based on commensurability relations between the instances and on causal relations between the parts of each instance. In Chapter 3, we considered the nature of such concepts as mental states and units of thought and knowledge, but we focused on them in their mature and perfected condition. In the present chapter, we will consider how concepts come into existence and maturity, including how this process is up to us and subject to prescriptive norms.

On a view like Aristotle's, there are general puzzles as to how concepts can come about and more specific puzzles about how we can direct our conceptualization of the world. Aristotelian concepts are genuine or attempted γνώσεις, which (in maturity, at least) discern essences, and we have seen two respects in which they could be said to stand in a hierarchy constituted by dependence relations. First, some concepts are intensionally divisible into other concepts and ultimately into the indivisible thoughts that constitute νοῦς and are the principles of the ἐπιστῆμαι. The objects known by νοῦς are the primaries, principles, and causes, which Aristotle describes as prior and better known by nature or *simpliciter* than the objects of the ἐπιστῆμαι, which derive from them. Second, we have seen that concepts depend on perception: thought requires a φάντασμα and essences are discerned in perceived or imagined particulars. If, as I argued in §3.3.1, some concepts are related to perception directly and others only through other concepts, then the concepts further from perception will depend in some way on the ones that are closer to it. At the very least, the concepts nearer perception play a role in the formation of the concepts that are further from it, and earlier (in §3.3.1) I argued for a stronger dependence than this—one on which the relation between the later concepts and their objects involves the mediation of the earlier ones. Aristotle captures this dependence relation by describing the items

closer to perception as better known to us (and occasionally prior to us) than those further from perception.

Often these two hierarchies run in opposite directions so that a concept near to perception will have its essence partially constituted by the object of a concept that is further from it. Aristotle comments on this in *Topics* VI.4:

> *Simpliciter* the prior is more g-known than the posterior—e.g., point {is more g-known} than line, and line than plane, and plane than solid, just as unit {is more g-known} than number; for {it is} prior to and a principle of all number. And likewise also a letter {is prior to and a principle of} a syllable. But the converse sometimes happens to us; for a solid falls most under perception, and a plane is more {under perception} than a line, a line more than a mark. For the many first get to g-know (προγνωρίζουσιν) such things; since the former are for any chance διάνοια to learn, and the latter are for a precise and extraordinary one.
>
> *Simpliciter* it is better to try to get to g-know posterior things through prior ones; for such is more e-knowing. Nevertheless, relative to those who are unable to get to g-know in this way, it is perhaps necessary to make the account through things that are better g-known to them. Among such definitions are those of the point, line and plane; for all reveal prior things through posterior ones. For, while the line {is said to be the limit} of the plane, {the plane} is said to be the limit of the solid. But we must not overlook {the fact that} it is not possible for people who define in this way to reveal the definiendum's *being what it is*, unless the same thing happens to be both better g-known to us and *simpliciter*. Since the person who defines correctly (τὸν καλῶς ὁριζόμενον) must {do so} through the kind and the differences, and these are among the things that are better g-known *simpliciter* and prior to the form. For {when they go out of existence} the kind and the difference abolish the form; thus they are prior to it. And they are also better g-known; for, although {when} the form is g-known, it is necessary that the kind and difference are g-known too (for one who g-knows man, also g-knows animal and footed), {when} the kind and form are g-known, it is not necessary that the form also be g-known, thus the form is more g-unknown (ἀγνωστότερον). (141b12-34)

There is an obvious tension here. If to have the concept "man" is to g-know the essence "biped animal", but man is better g-known to us than either biped or animal, and therefore g-known before these other terms, then there will be a time when we g-know the biped animal without g-knowing biped or animal. Since this seems impossible, it is hard to see how this theory could allow for the possibility of coming to know anything.

The difficulty here is a variant of a problem that we saw earlier is inherent in the Socratic theses that to have a concept is to grasp what its objects are, and that one must know this in order to know anything else about the objects. Indeed, an Aristotelian ἐπιστήμη is, in essence, a body

of knowledge about a subject based on a knowledge of what it is. The situation for Aristotle is somewhat more complicated by the possibility of there being several intermediate steps between the subject and what one knows about it, so that instead of two varieties of knowledge, one depending on the other, as in the Socratic case, we have a hierarchy of dependence. We saw earlier how these Socratic commitments generate the *Meno* problem—the paradox that it is impossible to inquire into what anything is because to pose the "What is it?" question one would need to have the concept and therefore to already know the answer (since having the concept consists in knowing what the object is). The paradox arises precisely because we clearly do inquire, and more generally use concepts productively, before we are able to articulate essences. In general, the order in which people seem to learn things is quite different—almost the reverse of—what one would expect on the Socratic picture. What is first to us is not what is first by nature.

Plato resolved this difficulty by denying that (in this world at least) there is any such thing as learning (Meno 81c-e), and maintaining that even perception depends tacitly on prior knowledge of essences (i.e. of Forms) which one may not have full conscious access to (*Phaedo* 75b). We have already seen parts of Aristotle's contrary solution. Γνῶσις comes in degrees differentiated by (perhaps amongst other things) precision. Other γνώσεις arise from perception, which is the least precise, by a process of "precisification" in which one decomposes a thought that is prior to us into one that is prior by nature. Before performing this process, we do have the naturally prior thoughts in a way—we have them in the sort of potentiality in which the owner of a house has the timbers out of which it is built.[1] But once we come to have these thoughts in

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[1] Aristotle elaborates on a similar example concerning geometrical proofs in *Metaphysics* Θ.9:

> The constructions in actuality are discovered; for dividers discover {them}. If they had been divided {already}, they would have been evident; but now they inhere (ἐνυπάρχει) in potentiality. "Why is the triangle two rights?" "Since the angles around a single point are equal to two rights." So if the line beside the side was brought up, it would have been clear straightaway when seeing {it}. "Why is there a semicircle in the right {angle} universally?" "Because if three lines are equal—the two {forming} the base and the one dropped straight from the middle…" It's clear to whoever sees and o-knows that. Thus it is evident that things that are in potentiality are discovered {when} brought into actuality. The cause is that thinking is the actuality, so that the potentiality is from an actuality, and, through this, makers {of constructions} g-know (for the numerical actuality is posterior in coming to be). (1051a21-33)

(On the respects in which actualities are and are not posterior to potentialities, see *De Anima* III.5 430a10-22 and III.7 31a1-4.) The divisions in the diagram, through which the theorem is known are present in potentiality even in the initial shapes because lines *can be* extended and bisected and so on. These are intellectual operations, and thinking (of the relevant geometrical sort) consists in performing them, and in grasping through them theorems

actuality, we can recompose the thoughts that are prior to us from them, and thereby achieve a more intensive γνῶσις of the items that are best known to us.

It is this process—the process of conceptualization—that we will look at in greater detail in this chapter. However, we will have to be selective in our treatment of it, because the process cannot be separated from the process of coming to know as such, and this is too large a subject to tackle in the time remaining. In §4.1 I will discuss the process of concept formation in broad outline by focusing on *Posterior Analytics* II.19, the *locus classicus* on the issue. II.19 treats the process from a third-person naturalistic perspective asking how these precise forms of knowledge could come to be from less precise forms. In §4.2 and 3 I look at texts in which Aristotle discusses the coming to be or maturation of conceptual knowledge from a more first-personal perspective. §4.2 addresses *Posterior Analytics* II.1-10's solution to the problem raised in the *Meno* of how it is possible to seek and prove *what something is*—the very knowledge in which a concept consists. §4.3 will turn to cases in which Aristotle advocates the introduction of new concepts or criticizes existing concepts.

4.1 THE PROGRESSION TO ΝΟΥΣ IN *POSTERIOR ANALYTICS* II.19

> About the principles, both how they come to be g-known and what the g-knowing state is, will henceforth be clear, after we've first raised an ἀπορία. (99b17-19)

So begins *Posterior Analytics* II.19. The chapter divides into two broad sections corresponding to the two questions. How γνῶσις of principles comes to be is discussed in 99b20-100b5 and the g-knowing state is taken up, identified as νοῦς, in 100b5-17. Our present interest is in the first of these sections. Its structure is typical of an aporetically motivated discussion. Immediately after the ἀπορία is raised (99b20-30), it is followed with an extremely abstract solution derived from the terms in which the ἀπορία was set out (99b30-34). This solution makes clear what features a concrete account will need to have if it is to resolve the ἀπορία. The discussion then ends with a

about the geometrical objects. Thus, the thinker g-knows the size and sums of the relevant angles with a precision that he could not have had by (e.g.) measuring the angles severally—he has ἐπιστήμη.

substantive treatment based on facts in the relevant domain, interspersed with remarks about how this treatment satisfies the requirements made salient by the abstract solution (99b34-100b3).[2]

The ἀπορία is stated as follows:

> It was said earlier that it is not possible to e-know through demonstration unless one g-knows the first and immediate principles. Someone might puzzle over g-knowledge of the immediates and whether it is the same or not the same, and whether there's e-knowledge of each, or e-knowledge of one but some other g-knowledge of the other, and whether the states, having not been in us, arise in us, or, having been in us, have been overlooked.
>
> On the one hand, it's absurd if we do have {g-knowledge of the principles}; for it follows that possessors of g-knowledge more precise than demonstration overlook {it}. On the other hand, if we acquire it not having it before, how would we g-know and learn, if not from preexisting g-knowledge? For it's impossible as we also said about demonstration. (99b20-30) [3]

Given that there is γνῶσις of principles, it must be either (a) innate or (b) learned; if innate it must be either (a1) conscious or (a2) unconscious. To this division we add four premises, two explicit and two tacit:

(P1) Learning proceeds from preexistent γνῶσις.[4]

(P2) The γνῶσις of principles is especially precise.

(P3) For γνῶσις, precision implies self-consciousness.

(P4) There is a time prior to a given person's self-conscious apprehension of a principle, during which he is not conscious of possessing any γνῶσις with the precision characteristic of γνῶσις of principles.

P4 flatly denies possibility a1, and, when combined with P3, it rules out a2. Therefore, γνῶσις of principles must be learned, and, as of P1, this means that it must proceed from preexistent γνῶσις. This preexistent γνῶσις must then either be (b1) at least as precise as the γνῶσις of the principles or (b2) less precise than it. P3 and P4 rule out b1 (regardless of whether

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[2] This pattern is followed, for example, in *Nicomachean Ethics* VII.1-4's discussion of ἀκρασία. VII.4 provides a concrete account that is recognized as a solution to the Socratic ἀπορία when it is viewed in the context of the more abstract solution given to the ἀπορία by VII.3's distinctions between types of εἰδέναι or ἐπιστήμη. For discussion of this and other ἀπορίαι in the *Nicomachean Ethics*, see Section III of my unpublished paper "Aristotle's Non-Dialectical Methodology in the *Nicomachean Ethics*".

[3] Cf. *Posterior Analytics* I.1 and *Physics* I.1, the first sentence of which tells us that εἰδέναι and ἐπίστασθαι proceed from γνῶσις of principles, elements or causes.

[4] This premise is, of course, a restatement of the principle with which the *Posterior Analytics* begins: "All teaching and all intellectual learning, arises from pre-existent g-knowledge." (71a1-2)

the earlier γνῶσις is held consciously or unconsciously), so b2 is the only remaining alternative. This is what I referred to earlier as the "abstract solution", and Aristotle states it as follows:

> Accordingly, it is clear that neither do we {innately} have such {states as g-knowledge of the principles} nor do they arise in us {despite our} being g-ignorant and having no state. Therefore, while it's necessary to have some capacity {in order to acquire g-knowledge of the principles}, it's not {necessary} to have {one} such as it {viz. the g-knowledge} or {one that's} more honorable than it or more precise. (99b30-34)

Immediately we're told that the required state or capacity is perception, a "connate discerning capacity" possessed by all animals, but the ἀπορία is not yet resolved because b1 is initially implausible. It is not clear how a more precise γνῶσις can arise from less precise ones, especially if deduction is one's paradigm of one γνῶσις arising from another. Thus a wider conception of how one γνῶσις can arise from others is called for. It is in order to provide this that Aristotle devotes 27 Bekker lines to the manner in which perception "instills the universal". Having done so, he has resolved the ἀπορία and can complete the agenda announced at the beginning of the chapter by turning his attention to the "g-knowing state" that results from this process—the state he identifies (at 100b12) as νοῦς.

Our present interest is in the 27 lines about the manner in which the universal is instilled. They read as follows:

> {All animals} have a connate discerning capacity, which is called perception; since perception is inherent, a retention of the perceptible arises in some of the animals, but in others it does not arise. So, for whichever {animals} it doesn't arise (either on the whole or about that for which it doesn't arise), there is not g-knowledge for them outside of perception; but for those who've perceived in which {the perceptible} inheres, it is still in the soul. Once many such things have arisen, a certain difference arises, in that for some an account arises from the retention of such things, for others not. (99b35-a3)

> So, while from perception arises memory (as we call it), from many memories of the same thing arises experience; for numerically many memories are a single experience. And from experience, or from all of the universal that has settled in the soul (the one beside the many, which would be the same one in all these), arises a principle of art and e-knowledge—of art if it's about what arises, of e-knowledge if it's about what is. (100a3-9)

> Indeed the states neither hold in {us} determinately nor arise from other states that are more g-knowing, but rather from perception, as in battle: a rout's occurred; {with} one {man} standing, another stands, then another, until it's

> arrived at a principle. And the soul is such as to be capable of undergoing this. (100a9-14)
>
> Let's state again what was just said, but not said plainly. For, {with} one of the undifferentiated things {ἀδιάφορα} standing, the first universal is indeed in the soul (for while one perceives the particular, perception is of the universal—e.g. of man rather than Callias the man); then in these {something} stands, until a partless and universal thing stands —e.g. such an animal until animal, and in this likewise. (100a14-b3)
>
> Now it's clear that it's necessary for us to get to g-know the first things by induction; for perception too instills the universal in this way. (100b3-5)

I address the perception from which this process departs in §4.1.1, the stage of experience in §4.1.2, and the advent of the universal itself in §4.1.3. But before looking in detail at the different states involved in this progression, it is necessary to say a little bit about what it is a progression *to* and about the ἀπορία being solved.

The subject of II.19 is the γνῶσις of principles. These principles are, viewed in one way, concepts and, viewed in another, propositions, because to have a concept is to know what the instances are, and this knowledge can be articulated in propositional form. In a way any concept might be said to be a principle for ἐπιστήμη (or τέχνη) about its objects. For example, conceiving of ice as solidified water (probably even if one does not know that this solidification is due to the absence of heat) will enable one to deduce that, say, ice sculptures and ice skating are possible. But while the knowledge yielded by such deductions may be ἐπιστῆμαι (or, more strictly, τέχναι) there is no distinct ἐπιστήμη with ice as its subject—no science of "crystology" that takes ice as a primary and tries to explain its attributes. Ice is, rather, something to be explained by some other ἐπιστήμη, probably meteorology or some other branch of φυσική. The concepts that II.19 is interested in, primarily at least, are the indivisible thoughts of primaries—concepts like "nature", for example.

The chapter's charge is to explain how such concepts can come about from less precise knowledge, but this problem is posed in a very schematic way, and we should expect, even the more concrete solution to have a similar character. The charge is not, for example, the *Meno*'s more specific problem concerning how inquiry is possible; this has already been addressed over the course of *Posterior Analytics* II, and we will turn to it in §4.2. II.19 is an appendix to this discussion, which focuses only on the possibility of precision arising from imprecision—principles from non-principles. Its aim is to make coherent, in the context of abstract

epistemological and psychological concerns, a progression and method that has already been laid out. Our treatment can begin with this appendix because we have already glimpsed enough of this progression to have some purchase on it, and because the chapter does provide a synoptic perspective on it that will be useful for us going forward, but we should guard against asking questions of the chapter that it is not intended to answer, and especially against assuming that the stages it enumerates map exactly onto stages in the process of inquiry discussed across Book II, and we should keep in mind that it does not offer an account of concept-formation as such, but of the way in which νοῦς can come to be.

4.1.1 The meaning of "perception" in II.19

Given our present purposes, the stage of perception is of little interest to us in its own right. However, confusion will arise later if we do not begin by considering the somewhat unusual way in which the word "αἴσθησις" is used in the chapter. It cannot refer specifically to the acts of seeing, hearing, touching, etc., because, if it did, the concluding remark that perception instills the universal by induction would make no sense. The induction of which Aristotle speaks is surely no part of seeing or smelling. Rather it refers either to the whole process of perceiving, remembering, associating like memories into experiences or else, perhaps, to some later stage in that process.

Moreover, if we take "αἴσθησις" in its usual sense, we will be at a loss to explain the claim at 100a17 that "while one perceives the particular, perception is of the universal". This statement is puzzling on two counts. First, Aristotle elsewhere tells us that perception is of particulars.[5] And second, it is obscure what it could mean for "what one perceives" and "what one's perception is of" to be different. If "αἴσθησις" were functioning here merely as the coordinate of the verb "αἰσθάνεται" so that words refer, in different grammatical forms, to the same act, then statement would be incoherent, since the genitive complement of the noun would be equivalent to the accusative object of the verb so that Aristotle would be differentiating a thing from itself. It's unlikely, therefore, that Aristotle is using the genitive complement and the accusative object to capture different relations in which an object can stand to perception. Rather,

[5] See, amongst other places, I.18 81b6, I.31 81a2.

the contrast intended is between "αἰσθάνεται" and "αἴσθησις", which are being said to have different objects.

We can get a purchase on what Aristotle means in contrasting these two forms of the same word by analogy to the case of "ἐπίστασθαι" and "ἐπιστήμη". In the last two chapters I made much of the distinction between ἐπιστήμη in potentiality and in actuality (or in first and second actuality). It is doubtful that the noun "ἐπιστήμη" was naturally used for the actuality anymore than the English noun "knowledge" is. Indeed, Aristotle illustrates the distinction between first and second actuality in *De Anima* II.1 by contrasting "ἐπιστήμη" with the verb "θεωρεῖν" (412a22-23), and notice how he distinguishes between the two senses of "ἐπιστήμη" in *Metaphysics* M.10:

> "ἐπιστήμη is twofold, as ἐπίστασθαι also is: one is in potentiality and the other in actuality" (1087a15-16)

Presumably the verb form is mentioned because the sense of actuality more naturally attaches to it than to the noun. This is confirmed by *Nicomachean Ethics* VII.3 where it is "ἐπίστασθαι" rather than "ἐπιστήμη" that it said to have two senses:

> But 'e-knowing' is said in two ways; for both one who has ἐπιστήμη without using it and one who uses it are said to e-know" (1146b31-32).

Here the noun is used not for something that can become active or not, but for an item in the soul which can either be employed or can lie fallow, where the verb can mean either having the item or using it. Now surely Aristotle didn't regard contemplating (or knowing in actuality) as making use of an inner item as one might make use of a tool. One makes use of it rather as one makes use of an ability, which is to say that it's quite natural to regard the ἐπιστήμη as the capacity or potentiality and its "use" in actualized ἐπίστασθαι as the actuality. So, it wouldn't be at all unnatural for Aristotle to draw the distinction between potentiality and actuality as one between ἐπιστήμη and ἐπίστασθαι.

There is no passage in which he draws the distinction in quite this way, but I think he is doing something equivalent with "αἴσθησις" and "αἰσθάνεται" in *Posterior Analytics* II.19. Now of course, for Aristotle there cannot be a direct analogy at the perceptual level to the difference between ἐπίστασθαι in potentiality and in actuality. The distinction arises in the case of ἐπίστασθαι because, having learned, one can exercise one's ἐπιστήμη at will. One cannot, however, perceive at will by actualizing some internal state, but only when one is actually being

affected by the perceptible object.[6] Nevertheless, perceiving does leave a trace in one's soul in the form of a state that can (at least sometimes) be actualized at will with a content that can be put to various uses. This state and content are, respectively, what the *De Anima* and *Parva Naturalia*, call "φαντασία" and "φάντασμα". Neither of these words appears in the *Posterior Analytics*, but II.19 speaks of a "retention" ("μονή") of perceptibles in the soul and of the perception's "inhering" ("ἔνειμι") (99b36, 39). Compare this with *De Anima* III.3's characterization of φαντασίαι as aftereffects of perception that "are retained (ἐμμένειν) and are like perceptions" (429a4-5). Recall also that II.19 equates this retained perception with memory, which is defined in *On Memory* 1 in terms of the possession of φαντάσματα (451a14-17).

I submit, then, that *Posterior Analytics* II.19 uses "αἴσθησις" in a wide sense to mean something like an imagistic content (i.e. a φάντασμα) or the state of having such a content (i.e., φαντασία), and that he uses "αἰσθάνεται" for the act of perceiving. The puzzling remark that "perception is of the universal" means, in the idiom of Aristotle's psychological texts, that φαντάσματα are of universals. As we will see shortly, this cannot be quite correct on Aristotle's view, but it does approximate to an important point made in *On Memory* 1. There we learn that the φάντασμα in which the memory of an individual consists does not, when considered in its own right, have that individual as its content. The φάντασμα is analogized to "a picture {ζῷον} that's been drawn on a board", which "is both a picture and a likeness":

> And one and the same thing is both of these, although it is not the same thing to be both of them; and one can contemplate it both as a picture and as a likeness. So too, one must suppose the φάντασμα in us to be something itself in itself and {also to be} of something else. So, while *qua* {a thing} in itself it is a θεώρημα or a φάντασμα, *qua* another (as a likeness), it is also a remembrance. And thus, whenever the motion of this activates, if it does so *qua* {what it is} in itself, the soul perceives the very same thing (e.g., some νόημα or φάντασμα appears to occur); but if {the motion activates} *qua* of something else, then, just as one

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[6] As we saw earlier, this is one of the disanalogies that Aristotle draws between perception and thought in *De Anima* III.4:

> When it {νοῦς} has become each thing, as one e-knowledgeable (ἐπιστήμων) in actuality is said to do (and this happens when he can exercise his ability by himself), even then it is {each thing} potentially in a way ({though} surely not like before he learned or discovered), and then it {viz. the intellect} is able to think by itself. (429b5-9)

"Επιστήμων" is an adjective used, e.g., for people well versed in a given art or science, and so probably suggests the state or "first actuality" more strongly than "ἐπιστήμη" would. Here "ἐπιστήμων in actuality" means having ἐπιστήμη as opposed to merely being able to learn and this state is analogized to perceiving as opposed to merely being able to perceive. What the passage tells us is that, in the intellectual but not the perceptual case, even this actuality is a potentiality in a way. And it is this way of being a potentiality that Aristotle has in mind in the passages in which he refers to ἐπιστήμη or ἐπίστασθαι in potentiality.

> views a likeness also in a drawing and, without having seen Coriscus, {views it} as Coriscus, and {just as} in this {case} the affection of viewing this is different when {it is} viewed as a drawn picture, so too {with the thing} in soul: though it occurs as an νόημα only, since it's a likeness, it is a remembrance. (450b20-51a2)

There is a way, of course, in which a φάντασμα isn't analogous to a picture: the latter can be considered entirely independent of any representational content as mere paint on a board, whereas nothing quite like this can be done with the φάντασμα, which is the retention in the soul of a perceptible form without its matter. Likely, what it is to be a particular φάντασμα is wholly to be the retention of a form received in perception, and all it is to have mental content of a perceptible form is to have it in the perceptive part of one's soul (either as a current perception or as a stored φάντασμα). Therefore, the φάντασμα is inherently representational in a way that the arrangement of paint is not. But what it is inherently a representation of is a *such* (e.g., perhaps, man), and not of the *this* (e.g. Coriscus) that initially transmitted the form. It is only a representation of him when considered as a likeness of him.

With this in mind, let's look again at II.19's puzzling remark about perception:

> For, {with} one of the undifferentiated things standing, the first universal is indeed in the soul (for while one perceives the particular, perception is of the universal—e.g. of man rather than Callias the man) (100a15-b1)

Most likely, given the context, "undifferentiated thing" refers to an individual member of an uncuttable form—e.g. to Coriscus.[7] The word "standing" comes from the rout metaphor a few lines earlier, where it seems to represent the retention of something in memory. So, for an undifferentiated thing to be "standing" is for a perceived individual to be held in memory. The

[7] We have already met with the many senses in which Aristotle uses divisional language. In two of its three prior occurrences in the *Posterior Analytics* "ἀδιάφορα" clearly refer to refers to uncuttable forms such as man (97b8, 31) (the remaining use, at 97b21, describes an "indifferent" attitude towards pleasure). Thus there is a *prima facie* case that the ἀδιάφορον referred to in the present passage is also an uncuttable form. However, if this is what the term means here, then the point of the clause cannot be to affirm that a universal is present in the soul (since it is obvious that such a form is a universal), but only to point out which forms are *first.* If so, the μὲν at 100a15 is odd, and more importantly, the parenthetical remark about perception being of the universal is irrelevant). Outside of the *Analytics,* "ἀδιάφορα" is often used to refer to things that do not differ from one another in form (see *De Caelo* 310b5, *Generation and Corruption* 323b19, *De Respiratione* 478b23, *Generation of Animals* 746a31, and *Metaphysics* M.7-8). (The basic meaning of "ἀδιάφορον", when used in this way is simply "not different", and Aristotle sometimes specifies the respect in which the things are not different, thus "ἀδιάφορα κατὰ τὸ εἶδος" [*Topics* 103a11, cf. 121b15-22, *De Caelo* 277a2-4, *Parts of Animals* I.4 644a25] or "κατ' ἀναλογίαν ἀδιάφορα μόνον" [*History of Animals* 497b10-11].) If it is being used in this sense here, then "one of the ἀδιάφορα" means one member of a group of things that do not differ from one another in form—e.g. one man—and this makes the most sense in context, since the assertion that having retained a perception of one of these amounts to having a universal in your soul is both bold enough to warrant a μὲν and supported by the comment about perception being of a universal.

contrast is between the original act of seeing and what remains of it in the soul as a memory. Coriscus is perceived as a particular, but this content is retained as a universal, just as we might expect should be the case from the *On Memory* passage quoted above.

Now, it cannot be that all we retain in memory from the perception of an individual man is a representation of man in general, because, then we would have no way to remember differences between people. Moreover, people can look quite different from one another and if the φαντάσματα are remnants of perception, we should expect them to inherit some of these perceptible differences.[8] Aristotle cannot be maintaining then that all we retain from the perception of Callias is the universal man. Likely his point is simply that instead of retaining Callias in all his individuality, we retain a *such*. The universal man is mentioned as a paradigm example of a *such,* but what would actually be retained would be a much more determinate such that includes all of Callias' distinctive perceptible qualities. Since there is no general name for people who look such as Callias does, and Aristotle is only making an aside, he simplifies by giving "man" as an example. This interpretation is suggested by an earlier remark:

> There is no e-knowing through perception. For even if perception is of a *such* and not of a *this* such, still necessarily {one} perceives a certain this and {one perceives it} somewhere and now. And it's impossible to perceive what's universal and applicable to all; for it's not a this nor {is it} now; otherwise it wouldn't be universal; for what exists always and everywhere we say is universal. (I.31 87b29-30)

The distinction between a *this* and a *such* is a distinction between an existent and (all or part of) its identity in abstraction from its individuality, time, and location. A "such" is a "way of being" (or what some of the early modern philosophers called a "mode"). As a way of being, a such is "repeatable".

The point of the remark at 100a17, then, is that there is no special work involved in getting from a *this* to a *such,* from an individual to a repeatable sort of thing. That part of the process of conceptualizing just happens for us when our percepts are retained. Granted the *such* Aristotle mentions is more specific than the *such* actually retained from the relevant perception, but this is not a major problem since he is about to discuss how the soul moves from a specific

[8] Perhaps details are blunted in the φαντάσματα, as the details of a signet ring might be blunted in the impression it leaves in wax, so that fine differences between similar looking men may not be retained, or may be less salient in the φαντάσματα than in the original perceptions, but a perception of Milo the wrestler will surely leave a different φάντασμα than a perception of a pigmy, and any remembered difference between two men, however fine grained, must be stored in the respective φαντάσματα.

such to progressively more general ones. The simplification in the example merely foreshortens the number of times this process will have to be iterated. There is, however, an important inaccuracy introduced by calling the *such* retained in memory a "universal". It can be one only in an attenuated sense.[9] The retained *such* of Callias does not satisfy Aristotle's definition of a universal as something that can be predicated of many, because it lacks the unity required to function as a predicate at all. The various features in which Callias perceptibly differs from other men constitute one visage only numerically and accidentally.

Before leaving the topic of perception in II.19, I want to address one remaining issue pertaining to perceiving itself rather than to the whole functioning of the perceptual part of the soul. A number of authors are troubled by the claim that perception is of man because they think the *De Anima*'s theory of perception rules out either man in general or any particular man from being anything more than an incidental object of perception. Barnes expresses the worry as follows:

> Aristotle's theory of perception divides the objects of perception into two classes, essential and incidental (cf. *An B* 6). Essential objects are either proper to a given sense (e.g. colors to sight, sounds to hearing) of common (e.g. motion, shape, size). Incidental objects cover everything else. If *X* is an incidental object of perception, then I perceive *X* only if there is some essential object *Y* such that I perceive *Y* and *Y* is *X*. Individuals are the prime examples of incidental objects (*An B* 6, 418a21; *Γ* 1, 425a24). There is very little evidence for *man*, but what there is makes it an incidental object (*An Γ* 6, 430b29); and in any case it is hard to see how man could be either a proper or a common sensible. *Man*, then, is not directly implanted in our minds by the senses, as Aristotle's words in *B* 19 suggest; but in that case we need an account, which Aristotle nowhere gives, of how such concepts as *man* are derived from the data of perception.[10]

It is by no means obvious that individual men are incidental sensibles. In the two passages Barnes cites in support of this view, the things said to be incidental sensibles are, respectively, the son of Diares and the son of Cleon. If Aristotle meant to be referring to individual men as such he should have spoken about Diares and Cleon rather than their sons. That he twice speaks instead of sons cannot be an accident, and it is clear in the second case especially that the man's being a son is precisely what's at issue. What he says there is that we

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[9] Notice that, in *Metaphysics* Z.13, when Aristotle argues that "none of the things that belong universally is a substance" because "none of the things predicated in common signifies a certain *this* but rather a *such*" (1038b34-a2), he treats being a universal as a sufficient condition for being a *such,* but he does not say or imply that it is a necessary condition.

[10] Barnes 1994 266. Cf. McKirahan, 1992 253ff.

perceive "Cleon's son not because he is Cleon's son, but because he is white". Surely he repeats "Cleon's son" rather than using the man's name or saying "this man" because he wants us to focus on a characteristic that is unambiguously incidental both to his being a man.

The passages are silent as to whether being a man in general or this man is a common or incidental perceptible.[11] But, contra Barnes, it is not hard to see how it could be a common sensible. Magnitude, shape, and motion are common sensibles, and surely a man's being the size and shape he is and moving in the way he does is part of what it is for him to be a man. After all, Aristotle's model definition of man is "biped animal", and being bipedal is largely a matter of having a certain shape and moving in a certain way. Even if a man's shape and means of motion are not part of what it is to be a man (or to be the man he is), these things are surely more than incidentally connected to his being a man. They are consequences or expressions of his being a man, which stand to being a man as being noisy does to being thunder. There is a strong case to be made, then, that the common sensibles include some of the things that makes individuals be what they are. If this is so, then the individual objects will be non-incidentally perceived. And, though the form "man" won't be (non-incidentally) perceived "for it's not a this nor {is it} now", we will perceive the features in virtue of which Callias is here and now a man.[12]

4.1.2 The nature of ἐμπειρία

From memories of perceived particulars, we progress to experience, about which II.19 tells us only that it "arises from many memories of the same thing" ("for numerically many memories are a single experience") and that a principle of τέχνη or ἐπιστήμη arises from it ("or from all of the universal that has settled in the soul").[13] *Metaphysics* A.1, discusses this stage in greater detail:

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[11] The same goes for the passage Barnes cites from III.6, at which we looked earlier. All that is said there is that the perception that the white thing is a man can be false whereas the perception of white cannot be because white is a proper sensible. But *De Anima* III.3 (428b22-25) tells us that we can be wrong about common sensibles as well as about things perceived incidentally.

[12] It is worth adding, in this connection, that the issue of going from individuals to kinds exists just as much for the proper sensibles as for man. In perceiving the red of a rose for example, one receives a determinate *such*, which may (in some contexts at least) qualify as a universal, but one does not as a unit receive the kind red, which subsumes many differing shades.

[13] On the parenthetically quoted disjunction, which is the subject of some controversy, see below §4.1.3.

> So while the other {animals} live by φαντασίαι and memories but have little experience, mankind {lives} also by art and reasoning. Experience arises from memories for men; for many memories of the same object culminate in (ἀποτελέω) a single capacity (δύναμις) for experience. And experience is quite like e-knowledge and art, but e-knowledge and art come about through experience for men; for experience made art, as Polus stated, but inexperience luck. But art arises when, from many notions (ἐννοήματα) of experience, a single universal view (ὑπόληψις) arises about similar things. For, while it is for experience to have the view that this benefited Callias when afflicted with this illness and Socrates {too} and many such particulars, it is for art {to have the view} that it benefited all such {people} defined according to a single form when afflicted with this illness (e.g., phlegmatic or choleric {people} when burning with fever). (980b25-a12)
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> In fact, relative to acting, experience seems no different from art, rather the experienced succeed more than those without experience who have an account. The cause is that, while experience is g-knowledge of the particulars, art is of the universals; and actions and occurrences are all about the particular; for one doesn't heal man when doctoring (or else {one does it} incidentally) but rather {one heals} Callias or Socrates or someone else spoken of in this way, who is incidentally a man. So, if someone without experience has an account and, while g-knowing the universal, is g-ignorant of the particular under it, he will often mistake the treatment; for the treatment is particular. But, just the same, we think *o-knowing* and comprehending (ἐπαΐειν) belong more to art than experience, and we suppose the artist to be wiser than the experienced (as, with respect to being more o-knowing, wisdom is implied in every case); this is because the former o-know the cause and the latter do not. For while the experienced o-know the that but don't o-know the why, the others g-know the why and the cause. (981a12-30)

Whereas the *Posterior Analytics* passage speaks only of ἐμπειρίαι, here Aristotle mentions first a "δύναμις for ἐμπειρία" and then "ἐννοήματα of ἐμπειρία". The δύναμις must either be the innate ability to have ἐμπειρία as such, or a state that stands to a given ἐμπειρία as an ἐπιστήμη in potentiality stands to an ἐπιστήμη in actuality. Clearly the latter is what is meant here, since the δύναμις is said to come about from memories, and what comes about from the memories of a certain sort of thing must be a δύναμις for ἐμπειρία about that sort of thing. Likely, then, the "ἐννοήματα" are exercises of the δύναμις. This would not be an unnatural meaning for this unusual word.[14]

[14] The only other occurrence of "ἔννοήμα" listed by the TLG (in Epicurus' *Letter to Herodotus* at 38) likely refers to an enduring state rather than a transient thought, but Aristotle uses the connate verb ἐννοεῖν in contexts where he wants to stress the occurent character of a mental state. For example it occurs in *On Memory* 1 at 451a6, where Beare amusingly translates it as "gets a sudden idea" (cf. *De Anima* III.6 430a10, where it refers to what one "has in mind" in a short segment of time, and *On Dreams* 1 458b18, where it refers to thoughts that occur during dreams).

Since II.19 (and, perhaps, *Metaphysics* A.1) seems to be giving us an account of concept-formation as an account of principle acquisition, we might wonder whether possessors of ἐμπειρία have concepts. The word "ἐννόημα", based as it is on "νόημα" might suggest that that ἐμπειρία is a conceptual state, as might the talk of people experienced in medicine. Surely, Aristotle has in mind here adults who are able to have thoughts of like: "Socrates felt better after having chicken soup when he was coughing like that, so maybe it will help Callias now." Moreover, the II.19's disjunction "from ἐμπειρία, or from all of the universal that has settled in the soul" (100a6-7) could be taken epexegetically to mean that ἐμπειρία just is the settling of a universal in the soul, in which case ἐμπειρία would almost certainly involve concepts. (I'll return to this issue in the next section.) Finally, the statement that experienced people "o-know the *that* but don't o-know the *why*", employs the jargon of the earlier chapters of *Posterior Analytics* II (to which we will turn in the next section) and places them on a par with people discussed there who know (and can define) thunder as a "certain noise in the clouds" and analogizes τέχνη with the grasp of thunder as "noise in the clouds due to the extinguishing of fire".[15] This all suggests,

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[15] This point is made by Bolton (1976 530), who identifies experience with "the type of understanding which is nearest to sense" and is enjoyed by "the possessor of a nominal definition". From this, he concludes:

> Experience is that type of codification of information about actual particulars drawn from sense experience of them which marks the first stage in learning where it is appropriate to speak of concept acquisition (*Posterior Analytics*, 100a3-9, Metaphysics, 980b28-981a2,a5-7). From this stage, Aristotle says, science takes its start (*Posterior Analytics*,100a6-8, cf. *Prior Analytics*, 46a17f.). This makes clear why nominal definitions, being starting points in science of the type which are better known to us contain information of the sort embodied in experience. Experience involves "a universal stabilized as a complete whole within the soul" (though not the final form of the universal, 100a6-7, 16). It also involves a "knowledge of particulars" (100a4-7, *Metaphysics* 981a15-16). Experience is a type of systematized memory(100a4-6) and as such involves a knowledge of a universal which is not detached from the knowledge of and memory of actual particulars. The specification of such a universal requires a reference to particulars though not by name or by mention of uniquely identifying characteristics. So when Aristotle characterizes nominal definitions as accounts from the point of view of what is better known to us and what is best known to sense he means that they focus on actual familiar perceptible instances of a kind and define the kind partly by means of a reference to those instances.

Bolton thinks that the tie to the individuals is crucial to the progression, because he reads Aristotle as having a Putnam-like account of reference, on which the concept refers to all the items that share an essence with the individuals in connection with which it was initially formed. Since we do not know this essence at first, reference has to be fixed causally (rather than descriptively) through those remembered individuals. But this account is predicated on a Moderate Realism about concepts and essences that we have seen that Aristotle does not hold. Moreover, as we saw in the last section, Aristotle thinks that already in retaining a percept in memory, the inherent link to the perceived individual is broken. The retained φάντασμα is still an individual in the sense of being determinate, and insofar as we have the ability to consider it in relation to the perceived individual, but in its own right it is of a *such* rather than a *this* and so cannot include reference to any deep essence that the individual object may have. (The respective φαντάσματα generated by water and the analogous substance on a Twin Earth, to use the

then, that ἐμπειρία is conceptual, and that the move from it to τέχνη or ἐπιστήμη is one of increasing the precision and causal depth of one's knowledge, rather than one of moving from an essentially perceptual and particularistic form of γνῶσις to a conceptual and universal one.[16]

On the other hand, the comment that some animals have ἐμπειρία, even if only a little, suggests strongly in the opposite direction. Moreover, A.1's initial statement of the difference between ἐμπειρία and τέχνη focuses on universality rather than on causal depth, which is only mentioned when Aristotle shifts his attention to how useful τέχνη and ἐμπειρία each are. That the experienced person's capacity affords him ἐννοήματα and ὑπολήψεις about particular cases, where the person with τέχνη has a single universal ὑπόληψις suggests that τέχνη enables its possessors to think universally about the relevant objects, whereas ἐμπειρία does not, which would mean that τέχνη but not ἐμπειρία involves the possession of concepts. This should not be

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standard example, would be the identical.) So it is doubtful that experience can have the kind of tie to individuals that Bolton needs. Granted, we can consider our φαντάσματα as likenesses of the individuals that figured in their causal histories, but in II.19, Aristotle's focus is precisely on the respect in which they are not bound to the individuals, which he seems to regard as important in grasping how perception can lead ultimately to (genuine) universals (presumably through the progressive de-specifying, correlating and explaining of the *suches* that remain after the inherent link with the individual is broken).

[16] This view is maintained by Modrak (2003):

> As described here {viz. at 981a5-12} experience consists in many notions (ἐννοημάτων). The external world through sense perception acts on the mind, producing not only perceptions and memories, but also particular conceptualizations of the observed phenomena. The experienced person is in a position to articulate these observations in sentences describing the effects of the medication on this patient and that one. Experience comes into play when past and present observations are grouped together and common features are recognized and generalizations based on these features are made. (97-8)

But it seems that this is precisely what experience cannot do, else it would have a ὑπόληψις that the medicine "benefited all such {people} defined according to a single form when afflicted with this illness", which is precisely the sort of γνῶσις that Aristotle contrasts with experience. One might think, however, that the merely experienced people are defective not in universality as such but in the degree to which their universals are "defined according to a single form". But there is no evidence for this in A.1 or II.19, and the impetus for such an interpretation would likely come from the view that "experience" denotes the highest stage of knowledge attained by non-specialists in a field and that it underwrites their ability to think and speak about it. However, we know from *Parts of Animals* I.4, that Aristotle thinks that laymen sometimes do have well defined universals:

> Perhaps, then, it is right… to speak in common in accordance with kinds wherever {one} is spoken of properly (καλῶς), men having defined it well, and has a single common nature and, in it, forms that are not very different, {e.g., the kinds} bird and fish, and {likewise} if there is any other that, though unnamed, includes the forms in it like a kind… (644b1-6)

Surely the men who defined bird and fish well, by (as Aristotle goes on to tell us) noting "the figures of the parts of the whole body", are ordinary people, rather than specialists; for Aristotle's point in this chapter is that we should eschew weird concepts introduced by philosophers (e.g., the *Sophist*'s "swimmers" [220b] which Aristotle has just rejected [644a12-16]) in favor of (certain) concepts in ordinary use and of any new concepts that can be introduced on the sound policies that they exemplify. This respect for (but not subservience to) natural language is evident in other parts of the corpus as well. See my discussion of the "named virtues" in Section II of "Aristotle's Non-Dialectical Methodology in Ethics".

taken to imply, however, that the merely experienced person lacks concepts *altogether*, only that he lacks certain concepts, and this points the way to a solution that reconciles most of the evidence.

There are different δυνάμεις of ἐμπειρία, resulting from memories of different sorts of objects. We can think of each as a precursor to a concept, so that someone who is merely experienced about a given thing will not yet have the concept for that thing, though he may have other concepts, which may even play some role in his ἐμπειρία. A concept too is a δύναμις; its exercise is a universal perspective taken on particulars. An example of such an exercise would be the thought of Socrates as a bilious man burning from fever. The concepts "bilious" and "fever" are universal γνώσεις linked with one another, and with other concepts, through deductive relationships than enable us, when thinking of Socrates as bilious and feverous, to draw further conclusions about him. A δύναμις for ἐμπειρία of biliousness, by contrast, would consist of a body of associated memories of individual bilious men and how they fared in different circumstances, and the ἐννοήματα in which it issues would be memories about these particulars that are especially relevant to present circumstances or perhaps ὑπολήψεις resulting from them about other particulars.

There is nothing to prevent the memories in which the δύναμις consists or the ἐννοήματα it produces from involving some conceptual content. For example, one might remember that Callias drank broth and that his complexion became less sallow, holding all this material in a conceptual form. What cannot be present, however, is the concept "bilious". The experienced man will simply regard the various bilious people as evocative of one another in some way, which disposes him to apply material remembered about one to the others.[17] The experienced

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[17] Cf. Charles 2000 152:

> The experienced person can pick out particular people as the ones to be treated by this medicine, but will still lack the resources to say (or understand) what groups them together as a unit. Thus, she may be able to say correctly 'This case is like that one', but not yet grasp in any general terms what the relevant likeness consists in. Her ability comes to no more than her being able to say: 'This individual (Socrates) is like that one (Kallias) in (e.g.) that respect'(pointing to some demonstrated feature of Socrates.)
>
> Similar remarks may apply to her grasp of this illness or this medicine. In each case, the relevant person with experience has no more grasp on *illness* or *medicine* than is given by her ability to discriminate particular instances on the basis of their being like other particular cases. Thus she will not grasp universals.

He goes on to note that some may describe the experienced person as having "the *concept* of the relevant illness" since she "can discriminate instances when confronted with them",

man like the possessor of a τέχνη may reach a conceptual ὑπόληψις that Socrates would do well to drink some broth. The difference will be that the τέχνη-possessor will reach this on the basis of a knowledge of biliousness and will think it of Socrates *qua* bilious, whereas the merely experienced person has no concept "bilious" and no content about bilious people as such, only more or less associated content about different bilious men. He has, if you will, no *mental file* for biliousness, though he keeps papers that might be collected together into such a file in a (more or less distinct) pile.[18]

In the previous example the subjects of the memories that cohere into the δύναμις for ἐμπειρία are individuals, but (for all that Aristotle says) this need not always be the case. We can envision a similar associational state arising among universals. A person might, for example, have the concepts "ant", "beetle", "bee", etc. while lacking the concept "insect" and yet have his (perfectly general) ant-knowledge associated with his beetle-knowledge, in such a manner that it often occurs to him that something may be true of beetles when he knows it to be true of ants. Thus we can envision different degrees of conceptual sophistication that might be involved in different ἐμπειρίαι. A cat may have ἐμπειρία of mice without having any concepts at all, while a pre-Aristotelian metaphysician might, on the basis of a sophisticated hierarchy of concepts, have ἐμπειρία (but no concept) of potentiality, essence, or final causality.[19]

(The experienced person's frequent ἐννοήματα may, of course, prompt him to organize the pile into a file—to form a concept for the biliousness that Socrates and Callias have in common—and this is likely Aristotle's point when he says that a "single universal ὑπόληψις" arises "from many ἐννοήματα of ἐμπειρία". However, this move represents a step beyond the limits of experience into [or at least towards] ἐπιστήμη or τέχνη.[20] Until he takes that step, the

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but this label is misleading. Aristotle's point is this: the content of a knowledgeable person's thoughts is fully general, involving universal which contain no essential reference to particular cases, but the person with experience alone enjoys a distinctive type of content, essentially constituted by reference to particular cases.

[18] I owe this analogy to Binswanger (1989), who was elaborating on Rand's (1990 67) likening of one's body of concepts to a complex filing system.

[19] See (amongst others) the texts discussed above in §3.3.1 n. 65.

[20] Charles, with whose treatment of experience I largely agree, describes what this step might consist in:

> Reflection on what is common in the particular cases of illness one has confronted and treated, and how they differ from other somewhat similar cases, gives an initial impetus towards grasping the relevant universal and seeing its connections with, and distinctions from other related universals. Initially, one may introduce a term (e.g. 'dropsy') as a way of labeling the instances one thinks of as examples of one type of illness. One may grasp some of the symptoms which one has found in general terms (nausea and lethargy followed by fever), and also note which medications work for

experienced person lacks the concepts in which the τέχνη [e.g.] of medicine consists, and which would enable them to render precise more ordinary concepts like "sick" which they may have and to grasp the causes of symptoms that they may be able to conceptualize at some level of precision. Someone, possibly a medical student, might have imprecise versions of [at least some of] the concepts lacked by the merely experienced person, without fully having the τέχνη, as someone might learn the concept "insect" or "thunder" without yet having a deep understanding of what an insect or thunder is. Someone who uses the word thunder, and knows that it designates a "certain noise in the clouds" will have the concept. Mere ἐμπειρία with regard to thunder would be possessed, for example, by a child who has started associating memories of that certain sound, but doesn't yet treat it as a unit in thought, or by an animal that has come to expect to hear such a sound whenever it sees lightening.)

If the preceding interpretation of ἐμπειρία is correct, then a complex body of largely conceptual knowledge might qualify as a (δύναμις for) ἐμπειρία relative to the concepts that would serve as principles of an ἐπιστήμη or τέχνη—say, perhaps, to the concepts of the four humors in medicine. Aristotle, writing in his brisk and essentialized manner, may have simply omitted the formation of the other concepts which we would form in the course of the progression from perception to these concepts and which would be partially constitutive of our medical ἐμπειρία, especially since it is likely not true in the case of every ἐπιστήμη that the experience from which its principles arise involves concepts. Surely the concept "animal" is a principle of zoology, as may be the concepts for some kinds and forms of animals, and these are just the sorts of concepts that a child is likely to form first.[21]

> which patients. For, one is concerned to see which types of treatment work for which patients and which do not, and to find some way of representing this knowledge at a general level (e.g. so as to communicate it to others). (2000 156-7)
>
> If one follows a route of this type, one has some reason to think that one is in touch with a genuine kind. This thought is underwritten by the similarities one sees in the cases with which one interacts. While it is a step beyond experience to grasp in general terms the illness with which one interacts, it is one which arises naturally *from* experience.

[21] On some of the issues involved in whether the various forms and kinds of animals are primaries, posited by the science, see above §3.2.3, n. 57. *Posterior Analytics* I.10 tells us that the kind an ἐπιστήμη studies is constituted by the things that it posits to exist, which may suggest that the kind animal, which is the subject of zoology, is constituted by multiple distinct posited forms of animals, in which case each may be a primary. On the other hand, it may be that all or some of the animal forms have their existence demonstrated from the existence of the kind animal, the basic contraries predicated of that kind, and relationships between these various dimensions of contrariety. Likely, both kinds of structures are to found in ἐπιστῆμαι. *Politics* IV.4 1290b25-38 endorses the latter sort of structure in the case of zoology, but there is hardly any evidence of it in the zoological works themselves. A notable exception is *Generation of Animals* III.11's bizarre speculation about fiery animals on the moon, which gives some

The alternative to this interpretation of Aristotelian ἐμπειρία is to think of it as extending much further. If it does, then Aristotle will not be able to consider any concept a fully fledged universal (or even perhaps fully a thought) until it has been rendered perfectly precise and has taken its place in a finished ἐπιστήμη, because, until this point, one will still be at the stage of ἐμπειρία and he tells us that in some sense at least ἐμπειρία is of particulars rather than universals.[22] I have indicated why I do not think this is correct, but little of consequence for my position turns on this point.[23] It is largely an issue of whether or not the stage at which someone conceives of thunder as "a certain noise in the clouds" is called "ἐμπειρία". What will be important as we move into the next section, is that an experienced person has a certain δύναμις that is distinct from a (precise) concept but can approximate to its function.

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indication that Aristotle thinks he can derive the existence of different broad animal types from general principles concerning animals and the four elements (761a33-b23).

[22] This is Bolton's (1976) position, as he thinks that the tie to the remembered particulars is necessary to fix the reference of the thoughts until one has a deep understanding of the essence. Modrak's view is similar, and she stresses the idea that the contrast between universal and particular ὑπολήψεσις in A.1 is between precise or scientific cognition and a more casual sort of universality that she thinks is part of ordinary thought and language use.

> By grouping together appropriate memories, the experienced person is able to make use of generalizations and to bring past observations to bear on the present situation. Insofar as this person employs generalizations, this person can be said to produce homespun universals, and Aristotle's description of experience in the *Posterior Analytics* {at 100a6-9} suggests as much. What experience does not yield are universals in the *Posterior Analytics'* definition of universal {i.e. the one given in I.4 at 73b25-a4} , and Aristotle often makes the divide between experience and art by employing the contrast between universal and particular in the strict sense. The scope of the universals of art and science should be such that the universal is predicable of all and only those objects that exemplify the universal at issue, and this is equally true for the universal principles of art and science, where one universal description is predicated universally of another. The differences in scope and character between the rudimentary universals of experience and the universals of art and science parallels the difference between linguistic meanings and scientific definitions. (2003 98)

Though I agree that the sense of universal defined in *Posterior Analytics* I.4 captures an important difference between ἐπιστήμη and art on the one hand and less precise conceptual γνώσεις on the other, I know of no evidence that Aristotle ever (much less "often") uses this definition to distinguish art and science from experience, and I can find none in Modrak. (She cites *Metaphysics* A.1 981a15-20, but nothing of use is to be found there.) I also agree more generally that there is a difference between the most imprecise universal γνῶσις that will allow for thought (and speech) and the precise form in which concepts figure in a mature ἐπιστήμη—a point which she is right to emphasize and to which I do not think Charles gives sufficient attention. But I do not think there is any item in Aristotle's thought corresponding to a "linguistic meaning" and I don't think that thought or speech arises until after the level of experience. Language is an expression of thought, which is universal (putative) γνῶσις and experience is not yet universal in character.

[23] This does make a big difference, however, for some of the scholars who approach Aristotle through the lens of 20th Century philosophy of language, and especially for Bolton, because the more inclusive reading of experience, makes the attribution of a Putnam-like theory of reference to Aristotle more plausible than it otherwise would be. Thus the defense of this view is central to Bolton's project, and to Charles' refutation of (and alternative to) reading Aristotle as a "modern essentialist".

4.1.3 The advent of universals

We are told tantalizingly little about the step from perceptual cognition of particulars to the grasp of universals. On Aristotle's first pass through the progression, he makes only the remark we've already seen—that a principle arises "from experience, or from all of the universal that has settled in the soul—the one besides the many, which would be the same one in all these" (100a6-8). We are next given the famous metaphor concerning a rout in battle, which is supposed to illustrate this explanation of how γνῶσις of principles can arise from less g-knowing states (100a10-13). Then (at 100a15-b3) Aristotle concludes with (what he takes to be) a more "plain" restatement of the account.

In this last treatment of the issue, Aristotle explains the progression using decompositional or divisional language. When one of the form-members is standing there is a universal present,

> then in these {something} stands, until a partless and universal thing stands—e.g. such an animal until animal, and in this likewise. (100b1-3)

Here we have a clear example of intensional division, that fits nicely with the morals we drew earlier from *De Anima* III and *Metaphysics* H.6. Man can be divided into "such an animal"—i.e. into (say) animal and bipedal, then animal can be divided into (say) living thing and perceptive, until one is left with indivisible primaries.[24] (Notice, incidentally, that Aristotle does not say that we do not have a principle of ἐπιστήμη until we arrive at the partless universal. He says only that this is where the process stops. It may be that prior to that point we have already reached a principle from which a less precise ἐπιστήμη can depart.)

Paradoxically, the rout metaphor, which is supposed to represent the very process that is explained more "plainly" in divisional terms, involves the coming together of a whole from parts. A phalanx is no part of a hoplite; quite the reverse. Given its position in the text, the metaphor must be meant to illustrate the coming to be of something determinate like the phalanx from something indeterminate like the bunch of routed hoplites. However, the metaphor is too complex to be used to illustrate only that order can arise from disorder, and the reuse of the

[24] Likely in this case the primaries would include οὐσία (which is the widest kind or ultimate intelligible matter under which man falls) as well as νοῦς, perception, and the activity of nutrition, which are definitive of (the different levels of) life.

language of "standing" in the subsequent "plain" treatment suggests that the details and stages in the metaphor are meant to have analogs in the cognitive process. Let us, then, consider how a phalanx would re-form after a rout and how its stages might mirror the stages of the progression from memory through experience to principles.

It is significant that the phalanx is a *functional whole*. A single hoplite standing his ground is able to maneuver in certain ways, deflecting blows from one side with his shield while thrusting from the other, but he is not able to take the actions distinctive of a phalanx or to function as he would as a phalanx member. Even after a number of other hoplites have joined him, each still must function as an individual, but now increasingly they can work together. Without yet being organized into a phalanx, they can begin to engage in primitive versions of the actions distinctive to a phalanx. This, I think, is the analog of experience, which allows one to reach a conclusion about a novel case based on old γνῶσις , but not in the systematic way that ἐπιστήμη or art does.

Continuing our story of the rally, at a certain point all the members of the phalanx are present. Now there is a step between the ad hoc co-functioning of all of the whole group of hoplites and their self-conscious organization into a proper phalanx. It is the analog of this move that is signaled by the phrase "from experience or from all the universal that has settled in the soul", around which there is some scholarly controversy. McKirahan (1992 243) frames the issue nicely:

> Is {the conjunction "or"} (a) disjunctive (the principle of science comes *either* from experience *or* from the universal in the soul), (b) explicative (it comes from experience, *that is to say* from the universal in the soul), or (c) progressive (it comes from experience, *or rather* from the universal in the soul, which is the next stage after experience)?

Reading (a) is implausible and hasn't won any significant defenders.[25] Reading (b) is accepted by Barnes (1993 294), Bolton (1976 530), Modrak (2003 98) and probably Ross.[26]

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[25] Though Charles (2000 150-151, especially n. 8 and n. 10) makes some interesting suggestions along these lines.

[26] In his periphrastic translation, Ross renders the "ἤ" as "i.e." (1947 674), but his comments on the on the relation between experience and universals could be read as suggesting something nearer to the position I advance below:

> What is revived by memory has been previously experienced as a unit. Experience, on the other hand, is a coagulation of memories; what is active in present consciousness in virtue of experience has not been experienced together. Therefore (*a*) as embodying the data of unconsciously selected awareness it foreshadows a universal; but (*b*) as not conscious of what in the past is relevant, and why, it is not aware of it as universal. I.e. experience is a stage in which there has appeared the

The third, which McKirahan adopts, was Aquinas'(2007 339) view and is defended by Charles (2000 151ff). I think this reading is closest to correct, but that the "or" is not quite corrective. Rather, I think the rout metaphor gives us a way to see the whole universal's coming to settle in the soul as a sort of culmination or limit to experience, at which it becomes something over and above mere experience, as, when there are enough of them and they are well enough organized, the bunch of hoplites ceases to be a mere bunch and becomes a phalanx. On the metaphor, experience is the *gathering* group of hoplites that functions ad hoc, without central command. There will be a moment when the whole of the phalanx is there, and it remains only for it to conceive of itself as a whole and self-consciously function as such. At the corresponding moment in the soul, there is a universal present, in that the δύναμις in which the experience consists has acquired all the functionality of a concept. At this moment the knower, can say about the instances *what they are* and see this as a *basis* for having the sorts of ὑπολήψεσις about them that his δύναμις for experience has been generating for some time. Thus he is in possession of a concept and a principle that he did not have before.

The preceding is speculative, as any interpretation must be given the sparseness of Aristotle's imagery, but I think it is suggestive. Whether or not the details are right, what is most significant is that that the metaphor involves a group of things forming a functional whole by coming into a determinate order. Since the universal is said to come to be from many memories by way of an experience, this compositional perspective is significant. If we look at the process only divisionally, as the cognitive extraction of a single universal from the many memories in which it resides, it becomes mysterious why many memories would be necessary at all. If the universal resides in each, then why can't we grasp it from one memory alone?[27] (Perhaps the

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> ability to interpret the present in light of the past, but an ability which cannot account for itself; when it accounts for itself it becomes art. (1924a 116-7 [and quoted in 1947 677])

Here he treats it as ambiguous whether the merely experienced person has a universal, and the sense in which he thinks he does have is amounts to nothing more than his possession of the inarticulate ability that I've attributed to him, whereas on Modrak's and Bolton's views, we the experienced person should be able to give some sort of account of his reasons for thinking what he does about present cases. Certainly the person who conceives of ice as "solidified water" (without knowing that this is due to the total absence of heat) could explain why he thinks he'll be able to skate on the ice rather than falling through it. And the person who knows that it is now eclipsed, will either know this by perception, in which case he will be able to say that he can see that it has no light, or else by inference (e.g., [if he is looking at the ground rather than the sky] from the moon's failure to cast a shadow [cf. *Posterior Analytics* II.8 93a37-b3]), in which case, he should be able to state his premises.

[27] And II.19 is not the only evidence that we need to have perceived many particulars to grasp the universal:

> There is no e-knowing through perception. For even if perception is of a such and not of a this such, still necessarily {one} perceives a certain this and {one perceives it} here and now. And it's

many memories could make the universal form salient by providing contrasting contexts for it, but if this were Aristotle's view, we would expect the metaphor to bring it out, or at least for there to be some indication of it in the text, and there isn't either in II.19 or elsewhere.) Aristotle needs an account of concept-formation with both compositional and divisional dimensions, because, as we saw earlier, it is only by viewing things universally (i.e. in an indeterminate manner) that we can isolate their various causally relevant aspects and relate them (deductively) to one another. In II.19's language we can see both of the dimensions of concept-formation. If my speculation about the role of the rout metaphor is correct, we can also read into the chapter another aspect that we saw earlier must be a part of Aristotle's view of concepts: the idea that concepts are functional items and specifically that they are a means of explaining so that a theory of concept-formation will be a component of a theory of how we reach explanations.

4.2 SEEKING AND PROVING WHAT SOMETHING IS

A concept is a unit of thought that consists in (putative) knowledge of *what something is*, the account of which knowledge is a definition. The relationship between the processes of defining and explaining and the role of these two in the development of ἐπιστήμη is the theme of *Posterior Analytics* II. We can see this in the way the book's project is framed. The first chapter introduces four "things we seek", which come in two pairs: first, the *that* (e.g. *that the clouds are noisy*) and the *why* (e.g., *because fire is being extinguished in them*) and, second, the *if it is* (e.g. *if there is thunder*) and the *what it is* (e.g. *the noise of fire being extinguished in the clouds*) (89b24-5); and it tells us that the second item in each pair is sought when the first is o-known.

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impossible to perceive what's universal and applicable to all; for it's not a *this* nor {is it} *now* (otherwise it would be universal; for what exists always and everywhere we say is universal). So, since demonstrations are universals and {one} can't perceive these, it's evident that there is no e-knowing through perception; but rather it's clear that even if one could perceive that the triangle has angles equal to two rights, we would seek a demonstration and not, as some say, already e-know it; for, while what one perceives is necessarily a particular, e-knowledge is by getting to g-know a universal. That's why, even if, while on the moon, we saw the earth intercepting, we would not o-know the cause of the eclipse. For we would have perceived that there's now an eclipse, and not wholly why; for there was not perception of the universal. Nevertheless, {since} the universal comes about from observing this many times, if we hunted {for it} we would have a demonstration; for from many particulars the universal is revealed. (I.31 87b28-a5)

The second chapter collapses the two pairs into one another, treating the second member of each pair as the middle term in a demonstration of the first member. We have met with these ideas before: what something is and why it is are the same, and the proposition asserting the existence of any divisible thing is a reconfigured version of its definition into a predication; thus the first item in both pairs is a predication, and the second is the middle term through which the predication can be demonstrated. To establish the first item in the pair, through some means other than this middle term, is to establish that there must be some middle, which one will then seek. Thus the third chapter announces the book's project as follows:

> It is clear, then, that everything that's sought is a search for a middle; but let's say how one proves (δεικνύναι) the *what it is* and what the manner of the reduction (ἀναγωγή) is and what a definition is and of what things {there are definitions}, having first gone through the ἀπορίαι about these things. (90a35-8)

The agenda given here is carried out in II.3-10. After developing the ἀπορίαι in II.3-7, Aristotle gives a positive account of how definitions can be proved and how they relate to demonstrations in II.8-10. This can be seen as completing the project announced in the first two chapters. The remainder of the book further develops a positive account of the means by which definitions and explanations can be reached, drawing on the framework laid down in the earlier chapters. Chapters 11 and 12 address some general issues about causality in light of the view that causes are middle terms. Chapter 13 returns to the topic of definition, this time giving advice on how to "hunt out what is predicated in what something is". 14 discusses a method of determining what connections are suitable to be demonstrated and for arriving at demonstrations of them. 15-18 discuss relations between different demonstranda and middle terms, and the relevance of these relations to the process of explaining.

Though all of this material bears on our subject matter, limitations of space will force me to be selective in my treatment. In particular, I will have little to say about the positive advice Aristotle gives for constructing definitions in II.13 or about the method of (taxonomic) division, which Aristotle argues (in II.5) does not prove a definition, but which he appeals to in both II.13 and II.14 as playing a role in establishing definitions and framing problems to demonstrate. I will focus instead, in this section, on Aristotle's answer to the specific question of how we can search for and prove *what something is*, since as we have seen his identification of a concept with knowledge of what something is, threatens to make such inquiry and proof impossible. In the next section I will deal with some of the remaining issues discussed in *Posterior Analytics* II

(particularly II.14), though my focus will have shifted from that book proper to the question of what Aristotle has to say about the forming concepts, in those cases where this is done deliberately. Since our present interest is in Aristotle's positive account of how it is possible to inquire into or prove what something is, we will focus on II.8-10, but an important point about the character of this account is brought out by considering the ἀπορίαι with which Aristotle motivates it in II.3-7, So it is best to begin with a word about these chapters.

Notice that, in the quoted passage from II.3, Aristotle announces a concern with how one *proves* the *what it is*. "Proof" is a justificatory notion, what Aristotle is concerned with here is establishing the correctness of a definition. We can see this in his criticisms of proposed methods of defining that that they beg the question, and therefore do not establish the definition.[28] It is evident also in his interest in whether definitions can be demonstrated. In discussing demonstrations, I have emphasized their role as explanations of their demonstranda, but they are also arguments through which ἐπιστήμη is established. If asked *how one knows* that a triangle has angles equal to two right angles or that the summer will be hotter than the winter, the relevant demonstrations would be appropriate responses, and would settle the question to the satisfaction of anyone with the education necessary to appreciate the arguments.[29]

Aristotle feels the need for a way to justify definitions as well as conclusions and so is considering whether demonstration can perform the task and, if not, whether there is some analogous method that can.[30] The clearest evidence of the justificatory nature of Aristotle's concern with definition comes from II.7:

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[28] This is the case with attempts to prove what something is by conversion (II.4 91a35-b11) or division (II.4 91b12-27).

[29] The justificatory character of demonstration is obscured by translation of "ἐπιστήμη" as "understanding" (as in Barnes 1975 and 1993) . Understanding, as that term is normally used in English, presupposes knowledge that what is understood is the case, but is not (as usually conceived at any rate) a type of knowing that it is the case. Rather, one understands one thing, by knowing another, which is its cause. This knowledge of the cause, however, needn't be any part of one's knowledge that the explained effect obtains, which may not alter in any way when one learns the cause. For Aristotle, by contrast, to e-know something is to o-know it in a certain way—viz. on the basis of demonstration.

[30] We can see this same concern in *De Anima* I.1:

> We seek to study and g-know the nature and οὐσία of this {viz. soul} {…} But for everything and of everything, this is the hardest to obtain any conviction about. For the search (I mean that concerning the οὐσία and the *what it is*) being common to many other things too, it might seem that there is some single method for everything about which we wish to g-know the οὐσία, just as there is demonstration for the incidental distinguishing characteristics, so that we have to seek this method. But if there is not a single and common method concerning the *what it is*, then the business becomes still harder; for we will need to obtain the manner {in which to proceed} about each {object}. And if it is evident whether this is demonstration or division or some other method,

Also, it is evident that those who define in accordance with the current manners of ὅροι[31] do not thereby prove *that it is*. For, even if there is something equidistant from the middle; why does the thing {so} defined exist? And why is this a circle? For one could say that it was {the ὅρος} of mountain-copper. For ὅροι do not display (προσδηλοῦν) that what's described is possible, nor that definitions are of what they say they are; rather one can always ask why. (92b19-25)[32]

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there are still many ἀπορίαι and mistakes (πλάναι) {about the things} from which we should seek; for different things have different principles, like numbers and planes. (402a7-22)

Posterior Analytics II fulfills the need observed here to seek the common method, if there is one, for proving the *what it is*.

[31] "Definition" in my translations renders "ὁρισμός". Sometimes (as throughout this passage) Aristotle uses "ὅρος" with the same or a closely related meaning. To differentiate, I leave "ὅρος" in the Greek when it is being used in this way, and I leave both words in the Greek when they occur in proximity to one another. Linguistically these two are related as the English "limitation" is to the noun "limit", so it is natural that they should mean nearly the same thing. (In non-philosophical use "ὅρος" denotes a limit or boundary, and "ὁρισμός" is the abstract noun derived from the related verb "ὁρίζειν", which denotes the act of setting or marking boundaries. "Ὁρισμός", therefore, means "a setting or marking of boundaries".) Though, I cannot prove this here, I suspect that there is a slight but significant difference between these terms as Aristotle uses them and that "ὅρος" has a single sense for him across the respective usages in which it is standardly translated "definition" and "term". As we observed earlier, "term" for him is (harmlessly) ambiguous between the word the thought and the object, but if it ever denotes the word it does so only insofar as the word symbolizes a certain thought and so is of certain objects. Thus the same word used (as we would say) in two different senses would amount to two different terms (ὅροι), and it would be fairly natural for Aristotle to describe these as different "ὅροι" of the word. This is likely what he is doing at 93b38-a9, when he speaks of different ὅροι of (the word) "ὅρος". In this usage, it would be natural to translate "ὅρος" with "meaning" or "sense", but aside from carrying so much philosophical baggage, those words doesn't convey the sense of "definiteness" which is the root meaning of "ὅρος". Think then of "ὅρος" in this use as meaning "definite sense". The ὁρισμός, then, is the definition or the "being definite" of that definite sense. Or to make the same point in slightly different terminology, which connects it to my broader project: if we think of a ὅρος is a concept, then a ὁρισμός is a conception. It is perfectly natural English to move readily between talk of having different concepts and different conceptions of (say) justice. (And if one holds that to have one of these concepts is putatively to know *what justice is*, then one might think of both of these words as roughly equivalent "definition".) This way of rendering the words unites what are normally seen as two and could be seen as three distinct usages; however, like the translations involving "meaning" or "sense", it carries too much philosophical baggage to use, it is idiosyncratic, and it doesn't reflect the root meaning of "boundary"; these problems offset any advantages it might have over the standard translations of "term" and "definition". However, considering these alternatives sheds light on the relations between terms in Aristotle's Greek even if it doesn't help us to better represent it in English. In fact when "ὁρισμός" and "ὅρος" are used in the same passages "ὁρισμός" often seems to mean something like the line of reasoning by which a term is defined (the sort of thing which might be analogous to demonstration), whereas ὅρος has a more static connotation befitting something that would result from such a process. Consider for example, the opening sentence of II.13:

> How the *what it is* is exhibited in the ὅροι and in what manner there is or is not demonstration or ὁρισμὸς of it has been said earlier… (90a20-22)

[32] It might be surprising that Aristotle attributes definitions' failure to show that the definienda exist to their failure to show that what's described is possible (δυνατόν). This implies that showing that something is possible suffices to show that it is, which may seem odd. It may be significant that the example in question is of a kind mathematical object, the existence of which amounts to nothing more than the possibility of constructing such objects. For all the definer has said it might not be possible to construct described figure (as it would not be if he had given an account like "rectilinear figure equidistant from a center"). In this connection, Barnes comments:

> This anticipates the point later stressed by Leibniz that in a satisfactory definition the *definiens* must be consistent. Aristotle is commonly taken to imply that sufficiency is *sufficient* for

The reference to the definer's failure to address the sorts of objections and questions that might be raised by an opponent, makes it clear that what is at issue here is the justification of something put forward as an item of knowledge.

Summing up the preceding, what Aristotle is looking for in *Posterior Analytics* II.3-10 is a method by which we can discover essences or causes and justify the definitions in which we state them; and he has a special interest in the relation of this method to demonstration.

4.2.1 Varieties of εἴδησις *that* or *what* something is

Aristotle's positive account in II.8 begins with a passage, and a distinction, that we looked at earlier:

> Since, as we've stated, o-knowing what it is and o-knowing the cause of whether it is are the same, and the cause is an account of this (*that it is*), and this is either the thing itself or something else, and, if something else, either demonstrable or indemonstrable, accordingly: if it is something else and admits of demonstration, necessarily the cause is a middle and the proof is in the first figure (for what's proven is universal and predicable). In a way, then, there would be {demonstration of what something is}—{the way} that's now been examined: proving by means of another thing that it is. For the middle of a *what it is* is necessarily a *what it is* and {the middle} of a distinguishing characteristic (ἴδιον) {is necessarily} a distinguishing characteristic. Thus one proves one but not the other of the things that it is for the same object to be what it is. It was said earlier that this way would not be a demonstration; rather it is a rationalistic (λογικὸς)

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mathematical existence; but this does not square with his general views on mathematical objects, and 92^{b}23 only shows that consistency is a *necessary* condition for existence. (1993 216)

It is not clear to me what commentators Barnes is responding to here (Heath [1949 70-71], for example, who also draws the connection to Leibniz, does not mention this possible implication), but what I take the passage to imply is not that *consistency* is sufficient for mathematical existence, but that *possibility* is. Consistency is nowhere mentioned in the passage. It is natural to suppose, especially in light of modern mathematics, that the only thing that would make a defined figure impossible is inconsistency, as in the case of the square circle I defined above; but it is not clear that this is how Aristotle would think of it. One demonstrates the existence of a figure by constructing it, so what the definer needs to do to show that the figure exists is to show that it *can be constructed*. It's not clear that Aristotle could have envisioned a way to show that the definition was not inconsistent without performing such a construction, so it's hard to speculate about whether he would take that as proof of existence. In any event, there is at least one passage that suggests that Aristotle held that possibility is sufficient for the existence of even non-mathematical kinds. I have in mind *Politics* IV.4 1290b-25-38 (quoted and discussed above in §3.2.3, n. 57), where Aristotle tells us how to produce the forms of a kind by figuring out the possible combinations of differences in the characteristics that necessarily belong to all kind-members—for example, one might produce a form of animal by seeing that a certain type of stomach is compatible with a certain type of eye and with bipedality. Here again we seem to have possibility as proof of existence. (And recall, from §4.1.2, n. 21, that we may have an example of Aristotle inferring the existence of an unobserved kind of animal by this method in *Generation of Animals* III.2 at 761a33-b23.)

> deduction of what something is. But let's discuss the manner in which {definitions} do admit {of demonstration}, stating {the issue} again from the beginning. (93a3-16)

What something is is its cause (or an "account of whether it is") and this is either identical with the thing or distinct from it. We've seen that something identical with its cause is a primary which is an object of an indivisible concept and has its existence posited as a principle of ἐπιστήμη. By contrast, something distinct from its cause is a derivative whose existence must be demonstrated. It consists in a predicate's belonging to a subject (which is what it is for a predicate to exist) not *per se*, but through a middle, which is its cause and what it is. Aristotle mentions, in order to dismiss it, that there may be a way in which this middle can be demonstrated, in which case what the thing is will be in a way demonstrable, but not without begging the question. The task of II.8 is to find a legitimate way in which demonstration factors in the establishment of the definitions of derivative items. II.9 then (briefly) treats the case of primaries, and II.10 recapitulates the results of the previous two chapters in the form of a distinction between different sorts of definitions, which stand in different relations to demonstrations.[33]

Aristotle's thesis in II.8 is that the *what it is* is proved in the process of demonstrating, without being itself demonstrated (i.e., without being either the conclusion or the major term).[34] As he puts the point at the end of the chapter:

> It has been stated how the *what it is* is taken and becomes g-known: {1} neither deductions nor demonstration of the *what it is* come about, but it is clear that {it is taken and comes to be g-known} though deduction and demonstration; {2} without demonstration, one cannot g-know the *what it is* of something whose

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[33] This division of labor into separate accounts for the primaries and derivatives is anticipated in I.3:

> The universal is honorable because it reveals the cause; hence, about such things ({i.e.} any whose cause is other {than itself}) the universal is more honorable than perceptions and thought; about the primaries, {there's} another account. (88a5-8)

[34] It is worth saying a word at this point about a harmless ambiguity as to what a demonstration demonstrates. Viewed in one way it is the major term premise (i.e., the major's belonging to the minor), but in another way it is simply the major term, because for a non-οὐσία to exist is simply for it to belong to something. Notice, in this connection, that "ὑπάρχειν", the copula in Aristotle's logic, can be used existentially or copulatively, just like our verb "to be" (and Aristotle's "εἰμί"); unlike these other verbs, however, when "ὑπάρχειν" serves as a copula, its subject is the predicate of the proposition it is used to express. If we translate "ὑπάρχειν" as "obtain" and "εἰμί" as "to be", we can capture this difference as follows: one can say that something is either (a) *simpliciter* or (b) "in part" by adding qualifying predicates that tell us *how it is* (cf. *Posterior Analytics* II.2 89b37-a5, 90a9-14, a31-34); but one can say that something obtains either (c) *simpliciter* or (d) by adding a subject *for which* obtains. Assuming that what obtains is not a primary (and it is not clear whether Aristotle would use that verb for primaries), for it to obtain is for it to obtain of something.

> cause is something else; {3} there is no demonstration of this, as we sated also in the discussions of puzzles. (93b15-20)

In particular, something's *what it is* is proven by demonstrating *that it is*. In a certain sense this is obviously true on Aristotle's view, because, the proposition that a thing exists predicates one element in its definition of another: thunder is *a noise in the clouds*, which means that what thunder is is the *noise's belonging to the clouds*, and a demonstration that thunder exists concludes *that noise belongs to the clouds.* Thus, in II.10, where Aristotle distinguishes types of definition, he writes:

> Again, a ὅρος of thunder is noise in the clouds; and this is a conclusion of a demonstration of what it is. (94a7-9)

This is not quite accurate, however, since the relevant ὅρος of thunder does not *assert* the noise of the clouds whereas the conclusion does.[35] In the course of describing another sort of ὅρος (to which we will turn in a moment), Aristotle speaks of an account that is "said in different manners" and is only a ὁρισμός when said in one of these. Likely the same point is meant to apply in the present case. In any event, what the demonstration proves is the proposition corresponding to the definition "noise in the clouds", not that this is what thunder is: for all the demonstration shows, it might be the definition of mountain-copper (to echo Aristotle's concern at 92b22). The sort of definition that is proven to be a definition by the demonstration is what II.10 calls "an account revealing why something is". This sort of ὅρος is

> like a demonstration of *what it is*, but differs from a demonstration in {how it's} posited. For stating why it thunders and what thunder is differ; for in the one case you say "because fire is being extinguished in the clouds"; but "What is thunder?" "The sound of fire being extinguished in the clouds." So the same account is said in different manner, and the former way it is a continuous demonstration, while the later it's a ὁρισμός. (94a1-5)

It is this sort of definition and its relation to demonstration that, in II.8, provides a resolution to the problems raised in II.3-7. The progression of reasoning that leads to it begins with the standard doctrine that γνῶσις (and *a fortiori* εἴδησις and ἐπιστήμη) of what or why something is presuppose γνῶσις that it is (because something that is not *simpliciter* cannot *be* anything or the result of anything). Consequently someone who comes to g-know why (=what) something is must either already know that it is or else come to g-know this simultaneously, a

[35] On this point see I.10 76b35-39 quoted above in §3.1.1 (see especially n. 21, where I address some interpretive issues).

point which Aristotle makes at 93a16-20. Since Aristotle is interested in the process of seeking and establishing knowledge, he takes up the case where we know the *that* without the *why*, because, of the two cases, this is the one in which we're in a position to *seek* the *why*.

He turns to the issue of what it is to grasp that something is without grasping why—a condition that may seem impossible since why something is and what it is are the same, and it is unclear what it would be to know that something exists without in any way knowing what it is. Aristotle's answer is that in those cases where we have any real grasp on the existence of a thing, we also have something "relative to the *what it is*":

> But {as to} *if it is*, sometimes we have it incidentally and other times {when} we have something of the object itself—e.g., thunder, that {it's} a certain noise in the clouds, and eclipse that {it's} a certain privation of light, and man that {it's} a certain animal, and soul, that it moves itself. In the case of anything about which we o-know incidentally *that it is*, we necessarily have nothing relative to the *what it is*: for we don't o-know *that it is*; and to seek *what it is*, not having *that it is*, is to seek nothing. But in the case of anything of which we have something, it is easier. Hence, as we have *that it is*, so we have also {something} relative to the *what it is*. (93a21-28)

A standard Aristotelian example of incidental being, is the white's being musical. This is incidental, because musicality doesn't belong to whiteness, rather both belong to a man. Likely, then, to know only incidentally that something is would be to know (e.g.) that the white was musical, or, more generally to know of the co-presence of several terms without knowing the subject to which they belong. An example of this sort of knowledge might be found in the experienced person: whereas the proper subject for judgments about a treatment would be a certain form of patient, such as bilious people burning with fever), the experienced person, lacking the concepts "bilious" and "fever", would only be able to make judgments about particular patients (whose distinguishing characteristics are incidental to the form that is the proper subject). Or else he might manage to make claims about sorts of patients identified by some characteristic(s) that follows on the relevant form. He might say, for example, that "The white and short should take chicken soup." In this connection, consider the first of the ὅροι of "ὅρος" discussed in II.10:

> Since a ὁρισμός is said to be an account of *what it is*, it is evident that one sort will be an account of what a name (or some other name-like λόγος) signifies—e.g. what "triangle" signifies. When we have *that it is*, we seek *why it is*; but it is difficult to grasp in this way something of which we don't o-know *that it is*. The

> cause of the difficulty was stated earlier, that we don't o-know if it is or not, or rather {we o-know this only} incidentally. (93b29-37)

This suggests the possibility of words signifying λόγοι that are strung together from predicates like "white and short", so our merely experienced person might even have words in which to make his claims (which fail to predicate one thing of one thing) appear like legitimate predications. He might even use the word "bilious", without possessing the concept "bilious", to express his incidental knowledge.[36] He would be opposed to someone who, while not knowing *what biliousness is* in a deep or complete way, grasps something of *what it is* and does signify by it an account that reveals a unity—i.e., a definition of the sort that can be reconfigured into a proposition predicating one thing of another, which proposition could then be the conclusion of a demonstration that biliousness exists.[37] This person, but not the merely experienced man, would be in a position to seek what "biliousness" is. The latter may, on the basis of his experience, come to grasp the relevant universal, in which case he would then be in a position to seek the *what it is*; however, it is doubtful that his use of the word "bilious" to signify an incidental unity will be of much use to him in this progression. Likely this ὅρος of "ὅρος" is mentioned in II.10 only so that attention can be directed away from it and towards "the account revealing why something is" (93b38-9).[38]

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[36] As an example of inferring the existence of something of which we know only incidentally what it is, Ross (1949 630-1) suggests a case in which "we hear someone we trust say 'that is a so-and-so'" and "infer the existence of a so-and-so" though "we may have no notion of its nature".

[37] I am assuming here, for the sake of argument, that biliousness is not a primary, though Aristotle may have regarded it as at least a plausible candidate for one.

[38] Notably, Aristotle rails against the idea that a definer proves what a name signifies in II.7. In the end he concludes that the view is a non-starter because a demonstration couldn't "demonstrate that this name reveals *this*" (presumably because what names stand for is conventional); but, before doing so, he raises a number of absurd consequences, connected with the idea that a ὁρισμός is "an account signifying the same as a name":

> For, first, there would be {ὁρισμοί} even of non-οὐσίαι and of non-existent things; for one can also signify non-existent things! Again, all accounts would be definitions; for one can posit a name for any account whatsoever, so that we would all converse in ὅροι and the *Iliad* would be a definition! (92b26-34)

Since the connection between a name and what it signifies is conventional, Aristotle has little interest in it. Having words for one's concepts facilitates their serving as terms (though sometimes name-like λόγοι suffice), and it is important to know what they signify, and to disambiguate when this is necessary to avoid homonymy and other errors), but knowledge of what our words signify is readily available and does not represent substantial knowledge distinct from the knowledge of the signified objects. Nor do I find evidence that Aristotle thinks it is a normal state of affairs to have a word and know what it signifies without knowing whether the signified thing exists. Charles (1990, 2000) thinks that such a state is the first of three stages in the development of ἐπιστήμη, from which a thinker advances to establishing that the thing exists and then to discovering its essence. I agree in essence with Charles about how names for non-existent things can be significant so that we can sensibly consider whether centaurs or the void or Platonic Forms exist (see above §3.2.2 n. 46, n.52), but such questions only arise as a result of cognitive

Similarly, incidental knowledge is mentioned in II.8 to direct attention away from it and towards genuine knowledge that something is, which involves having something relative to the what it is and so makes it feasible to proceed to g-knowing what it is in a more robust sense—indeed, to proving it. If our conclusions about incidental knowledge are correct, then o-knowing that something is non-incidentally, should consist in having knowledge that can be expressed in a proper proposition predicating one thing of another, and this knowledge should constitute a grasp of something relative to the essence. Let us consider then, whether the examples Aristotle gives in the II.8 passage of grasps of something relative to the *what it is* fit the bill. They are: (1) knowing of thunder that it is a certain noise in the clouds, (2) knowing of an eclipse that it's a certain privation of light, (3) knowing of man that he's a certain animal, and (4) knowing of soul that it moves itself.[39] The case of thunder is easy because it contains both terms of the conclusion

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missteps. It is only because previous people mistakenly thought that there were such things that we have words for them at all. Normally one only introduces or learns words to signify things one knows exist, and I think it is a mistake to elevate something that is the result of previous error into a stage in the development of ἐπιστήμη. It would count as a stage, perhaps, on a view according to which the scientist progresses by posing tentative theories (possibly including several rival theories simultaneously) which he then elaborates over time, all the while gradually assimilating evidence for them. On such a view, the theorist would need words to denote various theorized items that he is not yet sure are real. However, I know of no evidence that Aristotle thinks that ἐπιστήμη develops in this way, and it is not how he conducts his own enquires. Nor does he tend to regard it as an open question whether most of the things signified by words in ordinary language exist. Almost all of the terms that Aristotle deems to be empty (or that he considers might be) are neologisms of the wise. The obvious exceptions are the toy examples of centaur and goatstag, which derive from mythology. Likely others can be found in the *History of Animals* and elsewhere, where Aristotle considers outlandish reports about exotic animals and the like. But serious questions never arise as to whether birds or natures or fire or cities, or virtues exist. (He does occasionally object to misconceptualizations in the vernacular [for an example, see §4.3.4 n.85], but [as for reasons sketched below in §4.3.4 n. 87] I do not think that disputing such concepts amounts to raising questions about the existence of anything.)

[39] These examples are sometimes thought to be, like the example of man, cases of the genus without the differentia. (Tredennick 1960 202, Deslauriers 2007 77; the idea is considered and rejected by Barnes [1993 218-19]). This may be right for the case of soul (though I doubt it), but I think it is unlikely in the other two cases. Could Aristotle regard noise as the genus of thunder? Of the three terms in the demonstration-like definition of thunder, "extinction" and "cloud event", both have better claims (though, see *Topics* IV.5 126a3-13, where Aristotle prefers "motion" to "air" as the genus of wind.) It is in studying clouds or the behavior of fire that one would study thunder, not as part of a "study of noises", which would be the proper place if thunder was a *form of noise*. If thunder were to be studied as part of a study of noise, it would not be *qua* thunder but *qua* being a noise of a certain sort that can also be produced by, e.g., the metal sheets that used to impersonate thunder on radio dramas. The noise would be defined by being a certain sort of motion in air—one that is violent and has a non-numerical λόγος, etc. I grant, however, that the issue is complicated because it is not entirely clear what role in an attribute's definition is to be played by its subject. One possible basis for thinking that the examples give genera would be some premise to the effect that phases of the form "X τί" must always mean a species of the genus X. This is what seems to be driving Deslauriers. But it is not true: "a certain X" needn't mean anything more than something that is X—e.g., a τόδε τι is not a species of the genus τόδε. (Bolton [1976 529-30] argues that the "τί" in these cases is a way of including in the account material that cannot yet be articulated—we know that thunder is a *certain* noise, which we can recognize as a matter of ἐμπειρία, but we are unable to describe just how it is different from other noises, prior to arriving at a causally deep definition. This is plausible: surely prior to knowing thunder's cause we can say a fair amount to distinguish the noise from others—it's loud, it's rumbly, it's non-musical, etc.—but, without knowing the cause, we

of the proposition affirming its existence. It is clear from the treatment of eclipse that Aristotle goes on to give that "privation of light" must be the major term, so we are not told the minor in this case, but surely we are meant to understand that it is the eclipsed thing—viz., the Moon in the case of the lunar eclipse Aristotle goes on to discuss. In the case of man we are only given the kind, which would be the minor term, but "certain" may be meant as a stand-in for the differentia or major term (as, likely, in the other cases it is meant as a stand in for the details of the major term). The case of soul is more difficult, because it is almost certainly a primary, on Aristotle's view, whose existence will not be demonstrated, so I'll reserve comment on it for the time being.[40]

Putting aside this last case as a possible exception, then, all the examples give us terms (or stand-ins for terms) that would figure in the conclusion of a demonstration of the definiendum's existence. There is a difference in that in the case of man the subject (or minor term) is the genus, whereas in the other cases it is the οὐσία that underlies an attribute. But this should not trouble us. If the existence of man is to be demonstrated, it would be by showing that some animals are a certain way. Whereas the existence of thunder would be demonstrated by showing that clouds are sometimes noisy.[41]

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may not be able to unite all these distinguishing characteristics into a single thought and so may only be able to represent them jointly through the numerical unity φαντάσματα. However [if one knows enough about sound] there is likely a way to unitarily differentiate the sort of noise possessed by the clouds [and things that sound like them] without knowing thunder's cause, so this disunity is unlikely to be a necessary feature of the stage of knowledge Aristotle is illustrating. Moreover, Aristotle would almost certainly have regarded it as beneath him to devote more than a word to describing how thunder sounds in the context of giving an example, and this is the most likely reason for his describing it simply as "a certain noise".)

[40] In any event, initiating motion is one of the two characteristic features by which Aristotle tells us that soul was distinguished by previous philosophers and which he emphasizes in his own treatment (see *De Anima* I.2, III.3 427a17, and III.9), and locomotion is one of the activities of which soul is defined (in II.2) as a first actuality.

[41] This parallelism is a result of the fact that the kind, as intelligible matter, is the subject for its forms, as perceptible matter is the subject for natural οὐσίαι, and οὐσίαι for their attributes. These two ways of being a subject are the same only at a very abstract level. Natural forms of οὐσία will have subjects of both sorts, as will many attributes. In a universe populated by *sui generis* individuals—or, better, by individuals that fell into uncuttable forms but not wider kinds—, some would have others as subjects, which would need to be mentioned in accounts of them. The forms do fall into kinds when they are related (in the manner summarized in §2.4.3) such that, we must group them and think of them generally in order to grasp their causal roles, including their having subjects or serving as subjects for other things. It would be a mistake to give an account of man or horse in terms of the relation between soul and body. These are to be defined as forms of animal and the soul-body relation should then be accounted for at the level of animal as such (or, perhaps, at the level of ἐμψῦχον—it is ambiguous because soul and life form successions rather than proper kinds).

4.2.2 Proving *what it is* by demonstrating *that it is*

As his first extended example of non-incidental knowledge that something is, Aristotle returns to the case where one comes to know the *that* and *why* simultaneously:

> When we have something of the *what it is*, first let it be thus: eclipse in the A position, Moon in the C position, and the Earth's interception in the B position. So then, so {to ask} whether its eclipsed or not is to seek the B—does it exist or not? This doesn't differ at all from inquiring whether there is an account of it; and, if there is, we claim it's eclipsed. Or: {we ask} of which {part} of the contradiction is the account—of having two rights or of not having them. When we discover {it}, we simultaneously o-know the *that* and the *why*, if we {proceed} through middles;[42] but if not {we o-know} the *that* but not the *why*. (93a29-37)

In the example, prior to performing the deduction, we do not know that eclipse belongs to the Moon (i.e., that it has *ceased* to shine or is "deprived of light"),[43] and we seek to discover deductively whether or not the predication holds, by finding whether there is some λόγος of it—some middle term connecting the deprivation to the Moon. In the example we are not trying to prove that there are such things as lunar eclipses (though one could construct a similar case); rather we are astronomers trying to infer whether one is taking place.[44] In order to hit on the Earth's interception as our middle term, we must already know that the Earth's interception belongs to Moon and that this deprives whatever it belongs to of light. Through this we

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[42] Reading "διὰ μέσων" with Barnes and the MSS; Ross prints "δι' ἀμέσων".

[43] The Greek "ἐκλείπειν", unlike our verb "eclipse" (which derives from it only through the name of the astronomical phenomenon) does not mean to block, but to desert, abandon, fail, cease, etc.

[44] That the fact demonstrated here is particular shouldn't surprise us, since we've seen that ἐπιστήμη in actuality has particular objects (though not *qua* determinate). Moreover, in II.12 (in another passage that we have considered in part before) Aristotle makes it quite clear that he sanctions demonstrations of eclipses at particular times:

> The cause of something's coming about and of its having come about and of its being in the future is the same as {the cause} of its existing; for the middle is the cause; except that {it's the cause} of existence {when its} existing, but {the cause} of coming to be {when it's} coming to be, and {the cause} of future existence {when it} will exist. E.g., "Why has an eclipse come about?" "Because the Earth has come to be in the middle." And it is coming about because it is coming to be there; and {there} will be {an eclipse} because {the Earth} will be in the middle; and there is {one} because it is {there}. "What is ice?" Assume that it is solidified water. "Water" is in the C position; "solidified" is in the A position; the middle, "total absence of heat", is the cause in the B position. Now B belongs to C, and "having solidified", which is in the A position, belongs to this. And ice is coming about when B is coming about, and it has come about when it has come about, and will be, if it will be. (*Posterior Analytics* II.12 95a10-21)

The deduction through a causal middle that the moon is eclipsed, will enable us to grasp why the moon must *now* be eclipsed (since, by knowing about the orbits, we will be able to see that the middle term, the earth's interception, has to hold now).

demonstrate that the Moon has ceased its shining, and, in so doing, we know what (and why) this ceasing is: it is (and is because of) the Earth's interception of (the light from the Sun to) the Moon.

From here, Aristotle moves to a case where we hit on some other middle term, one which is not *really* in the middle—i.e., which is not a cause. The eclipse demonstration has the lovely feature of having its middle term be something that takes place spatially in between the Moon and its light source, and this is likely why Aristotle chooses as his next case one in which the middle term is spatially downstream of the Moon:

> Moon is C, eclipse A, {and} in the B position is the full moon's not being able to produce a shadow although nothing visible is between {it and} us. Accordingly, if B (not being able to produce a shadow though nothing is between {it and} us) belongs to C, and A (being eclipsed) {belongs} to this, then, while it's clear *that* it's eclipsed, {it is} not {clear} *why*, and, while we o-know *that there is* an eclipse, we do not {o-know} *what it is*. (93a39-b3)

In this example we are astronomers again—or at any rate, we have enough astronomical knowledge to know without looking at it that the moon is full tonight. If we looked, we would see that it had ceased its shining, and so wouldn't need any deduction. Our eyes are trained on the ground, where we notice that there are not the sorts of shadows that we would expect from a full moon. We infer from this that the moon must have ceased its shining. As a result, we know *that* the moon must have ceased, without knowing *why* it has forsaken us. Do we know what the eclipse or ceasing is? Well we know *something of it*—namely that it is a ceasing of the moon. But we don't know that it consists in the Earth's interception of the light it normally receives from the Sun.

Once we are in this position of knowing that having ceased to shine belongs to the Moon (whether we got there through this shadowy inference or by direct observation), we can go about trying to discover why it has ceased by seeking a middle with which to demonstrate the connection between the ceasing and the Moon, just as we did in the first example (though then we did not yet know whether it had ceased or not). As Aristotle puts it:

> When it's clear that A belongs to C, {to seek} why is to seek what B is—whether it's interception or rotation of the moon or extinction. And this is the account of the other extreme—e.g., in this {case} of A; for the eclipse is the earth's interception. (93b3-7)

When we find this middle term, we will be in the same cognitive position as we were after finding it in the initial example, when it was only through it that we discovered that there was an eclipse. We will have proved that there is an eclipse in such a manner that we know *why* and *what* it is—that is, we will have ἐπιστήμη. Only in this second case, though, will we have discovered and proved the *what it is* of an object that we already had in view at the beginning of the process. The proof comes about though the same demonstration that yields the ἐπιστήμη. The conclusion of this demonstration will be that the eclipse, understood as the privation of light, exists, but the demonstration as a whole will embody a fuller grasp of what the eclipse is, and it will connect this fuller grasp with the privation of light by which the eclipse was initially discerned and conceptualized. As a result, the demonstration will show both that the eclipse exists and that the middle term defines it (rather than, say, defining "mountain copper") ; thus both of II.7's concerns about contemporary methods of defining (92b19-25) are addressed.

The process as described here involves a single eclipse rather than the kind eclipse; but nothing turns on this. One could wonder about whether the Moon is ever deprived of light (as, in geometry, one might wonder about whether parallel lines ever meet) and set out to prove that it does or doesn't; or, knowing that the moon sometimes is deprived, one can seek to determine why it is so.[45] Whether one is concerned with a particular lunar eclipse or lunar eclipses in general, however, in demonstrating, one regards it universally (*qua* lunar eclipse) and must call upon universal premises concerning the effects of intercepting bodies on light. The case is somewhat complicated here by the fact that the example involves the heavens, where the Sun and Moon are *sui generis*, but in the example of thunder, which immediately follows that of the eclipse in the text, the premises would be wholly general truths about fire, extinguishing, clouds, and noise. (Though, even here, to have fully actualized ἐπιστήμη of thunder, one will have to be contemplating these universals as realized in some particular cloud at some particular time.)

We have seen, now, how Aristotle thinks that it is possible to know in an imprecise (or causally superficial) way about eclipses (and derivative items generally) both *what* and *that* they are, and then, on the basis of this knowledge, to seek a deeper grasp, by intensionally dividing one's initial grasp that there are eclipses into the terms "Moon" and "privation of light", and then seeking a causal middle term through which the privation can be demonstrated of the Moon.

[45] Though, plausibly, in thinking this through one will have to project a specific eclipse and consider the relative positions of the Sun, Earth, and Moon. After all, one cannot think without a φάντασμα.

This, then, is Aristotle's solution to the *Meno* problem, at least in the case of non-primaries. In a significant sense, on this view, there is not really a distinction between knowing *that* something is and knowing *what* or *why* it is, for any knowledge that something exists will correspond a sort of knowing what it is, which will provide content to one's knowledge that it is. Knowledge is primarily a relation to an object, and to know the object is to know it as a *certain* thing that *exists* (i.e., to have both a *what* and a *that*), but one can formulate this knowledge in different ways so as to focus on the existence or the identity of object. However, there are also different degrees to which an object can be known—different levels of precision or causal depth. The lowest level is that of incidental knowledge, at which one hasn't really know *the object* at all; this level can be set aside. At the next level, one has discerned the object, but one does not know it as necessary, merely as the belonging of a predicate to a subject. At the highest level one does know it as necessary—as the belonging of the predicate to the subject through the middle. It is by grasping the identity of the object with increased precision that we grasp it as necessary, and this is why, when we know something with a lesser degree of precision, we can be said to know "that it is" and not to know "what" or "why" it is.

I have spoken here as though there is only one level between incidental knowledge and perfectly precise knowledge in which the object is apprehended as necessary, but this need not be the case, and there is evidence in II.8 that it is not. Recall that, in connection with the case of thunder, which we considered in Chapter 3, Aristotle writes:

> What is thunder? Fire's extinction in a cloud. Why is there thunder? Because the fire in the cloud is extinguished. Cloud {is} C, thunder A, {and} the B is fire's extinction. B belongs to C, the cloud, (for the fire is extinguished in it), and A, a noise, belongs to this; and indeed B is the account of A, the first extreme. If there is, in turn, another middle for this, it will be from the remaining accounts. (93b7014)

Supposing that there is another middle, the person who has proceeded from grasping thunder as mere noise in the clouds to grasping it as noise in the clouds due to the extinction of fire still does not see why (even granted that there is fire being extinguished there) the clouds must be noisy as they are. Why couldn't they extinguish silently? He knows *that* there is no silent extinguishing, but this knowledge has the same imprecise and contingent character that his knowledge that the clouds were noisy previously did, and this contingency at the deeper level redounds upon the conclusion that the clouds are noisy. Nevertheless, progress has been made,:

the noisiness of the clouds is known with greater precision than it had been, and an element of contingency has been removed.

4.2.3 The primaries and how they are known

Aristotle tells us on a number of occasions that γνῶσις of primaries (or things that are the same as their cause or essence) works differently than γνῶσις of other things. We can see an indication of this in *Posterior Analytics* II.8 93a3-9, quoted above, and it is explicit in Aristotle's brief statements on principles in II.9 and 10:

> While the cause of some things is something different, {the cause} of others is not. So, it's clear that some {cases} of *what it is* are immediate and principles, for which both *being* and *what it is* must be supposed or made evident in some other manner (just as the arithmetician makes {his principles evident}—for he supposes both what the unit is and that it is). But for things that have a middle (i.e., for things for which there is some different cause of οὐσία), there is, as we stated, revealing though demonstration, {though} the *what it is* is not demonstrable. (93b21-8)

> The ὁρισμός of an immediate is an indemonstrable posit of what it is. Therefore, one ὁρισμός is an indemonstrable λόγος of *what it is*, one is a deduction of *what it is* differing in declension from a demonstration, and a third is a conclusion of a demonstration of *what it is*. (94a9-14)

The central idea in the *Posterior Analytics* passages is that a mature, maximally precise, γνῶσις of a non-primary consists in a demonstration of it, and that this cannot be so in the case of the primaries.[46] Rather they must be known as necessary in a different way. II.19 characterized these principles as partless universals and described a process of intensional division by which

[46] One implication that might be drawn from this is that it may not be possible to know primaries imprecisely, so that if one knows them at all it will either be with perfect precision or else only incidentally. The reason that we can know derivative items imprecisely is that they have a Middle, which we can fail to know even while knowing the extremes, and this situation cannot occur in the case of primaries, which are unmiddled. Nevertheless, I think it is possible to grasp the primaries imprecisely. Soul is a primary—it is the principle of animal life—and one can grasp that there is some such principle—a first cause in animals of their life processes—without understanding just how these processes are caused. One might, for example, mistakenly look for a material cause for these processes, and so identify the soul with spherical atoms, as Aristotle tells us Democritus did (*De Anima* I.2 404a1-8). Putting the point more schematically, it is possible to know that there is a middle between two terms, without knowing what it is. Aristotle describes this state at *Posterior Analytics* II.1 90a5-6. It is possible therefore to know principles as middles without knowing anything more about what they are.

they are reached. We saw what is likely the same idea in a passage from *De Anima* III.6 at which we looked earlier:

> The point and every division, and what's ἀδιαίρετον in this way, is revealed just as the privation {is}. And the same account applies to the rest—e.g., how one gets to g-know evil or black: for one gets to g-know them in a way by their contraries. (430b20-22)

Here the non-primaries are thought of as divisible items, and the primaries as indivisibles. One g-knows the former by g-knowing their constituents, but this cannot be so with the latter. Rather, the indivisibles must be known by contrast with their contraries. Earlier (in §3.1.3), I argued that these contraries are the things that are divisible into them. One grasps a point, for example, as indivisible by contrast to the divisibility of a line. Similarly, we might expect that principles will be defined *as principles* or *primaries* of a certain domain. In fact, we do occasionally find definitions like this in the corpus. *Physics* II.1, for example, defines nature as the "principle and cause of motion and rest" (192b21).[47]

Before pursuing this line further, it is best to observe that being a primary or principle or element is relative to a way in which one thing can be derived or constituted from others. A primary is that which is *not* derived, and from which other things are derived. There is a nice example of this in *Posterior Analytics* II.13, where Aristotle defines the triad as the number that is "primary (πρῶτος) in both ways—both as not measured by a number and as not composed from numbers" (96a37-8). Normally "πρῶτος" in this passage is translated "prime", and it is natural to do so since it is the word used to describe what we call "prime numbers" (the ones that Aristotle describes as not "measured by number"), and Aristotle clearly recognizes this as the default sense of the term as applied to number, because he recapitulates his definition of the triad as "a number, odd, primary and thusly primary (πρῶτος καὶ ὠδὶ πρῶτος)." However, these numbers are called "prime" or "primary" just because they are not derivative of other numbers in a certain way—namely, "by being measured by them" or having them as factors. Aristotle is happy to say that some of these primary numbers are not primary in another respect because

[47] The definition of soul developed in *De Anima* III.1-3 might also be an example. It is said to be a principle of life and as a first actuality (which, surely, makes it some kind of cause). But the case is complicated by soul's status as a succession which may not admit of a fully universal account.

there is another in which they are derived from prior numbers—not by multiplication but by addition.[48]

In ancient mathematics, numbers are composed by multiplication from the prime numbers, and the prime numbers were composed by addition from two and three. These two are the only numbers that are wholly primary. Odd and even are attributes of number as such, but they belong in the first instance only to these primaries (cf. 96b21-25). Whether a number other than two or three is odd or even is an effect of how it's composed from prior numbers. Essentially two is the principle of the even numbers (since anything measured by two is even) and three of the odds (since any odd number will have to have three somewhere in its genealogy), so "primary odd number" is a quite sensible definition of three. And it is sensible that the "additively" primary should come after "multiplicatively primary", since the non-additively-primary odds have three in them by multiplication (directly or indirectly), whereas the multiplicatively primary odds (e.g. 5, 7, etc.) have three as a component only by addition.

Another way of being derivative is being a form of a kind, which is generated from the kind by the process of taxonomic division. Thus the triad, though primary in that it is not composed from other numbers, is derivative in that it is a form of the kind number. Aristotle tells us that it and the dyad are number's "primary uncuttables in form" (96b16), by which (I take it) he means that the other uncuttable forms of number (the tetrad, etc.) are derived from the triad and dyad, as discussed above.[49]

Again, the four elements are the primary bodies because other bodies are composed out of them, the triangle is the primary figure because the other figures are composed (in quite a

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[48] This also explains why the terms in the definition of the triad have the order they do. Charles (2000 224-30) stresses that the order must be significant: if it were arbitrary, the definition would be one only by conjunction; and, in any event, Aristotle's language "up to the point where…" suggests a definite progression. Yet it is not obvious why these three differentia belong in the order in which they occur, especially since they do not quite narrow successively (i.e., form narrower and narrower subdivisions of a single group), since the final differentia includes the dyad, which has already been excluded by the previous ones. Charles gives an alternative explanation for the order, involving a mathematic procedure known as "Eratosthenes' sieve". I find this less convincing, because there is no direct evidence for it in this passage, and I don't know of any evidence anywhere else of interest on Aristotle's part in this method. On the other hand, notice that on the very same Bekker page, Aristotle goes on to talk about the primaries in each kind and their importance when "engaging a whole", and he mentions two and three as examples.

[49] Number is not a kind in the strictest sense of that term, but a succession (on which, see §2.1.2, above) in which some members are derivative on others. The same goes for the succession of figures. In a proper kind, all the members are on a par. In II.13, when Aristotle speaks of "engaging a whole" he seems to mean a succession, in which some items depend on others, though there may be some subtle distinction between a succession and a whole in this sense. See *Metaphysics* Λ.1 1069a18-22, in which the possibility that the universe is a whole is contrasted with the possibility that it is a succession. Whatever difference Aristotle has in mind in that passage, it is clear that in either case there will be a first item (οὐσία) on which the others somehow depend.

different way) from triangles, the phonemes are primaries in vocalization, etc. What is important in each of these cases is a derivative inherits its characteristics from the primaries and from the way in which it is derived from them. Thus, Aristotle describes the value of knowing about the primary uncuttables (i.e. the dyad and triad or their analogs in geometry) as follows:

> For the attributes of the things composited from the {primary} uncuttables will be clear from the definitions, because the principle of everything is the definition and the simple thing, and the attributes belong *per se* only to the simples, but [they belong] to the others in virtue of these. (96b21-25)

The same sort of inheritance relation Aristotle describes here between the primary numbers and the derivatives holds too between kinds and their forms: each form inherits the universal traits of the kind, though in a specialized way determined in accordance with its differentia. For example, all birds have wings, and hawks have wings of a certain form suited to their predatory lifestyle. And, as we know from *Meteorology* IV, the characteristics of bodies composed from the elements is a function of what elements they are composed from the ways in which they are composed from them.

Some of these derivation or composition relationships exist in reality independent of the mind, whereas (as I have argued) the relation between kinds and forms (and more generally universals and particulars) does not. But though there are not real universals, there are real facts about objects that can only be apprehended universally—namely, the causal and (mind-independent) compositional relations in which they stand. A pentagonal object is, in reality, divisible into three triangular ones, and has certain geometrical attributes as a result of this; it is only through thinking of it as a pentagon that we can see why this must be. Similarly there are real relations between the beaks and wings of different individual birds, and these are apprehended only by thinking of them as birds. It is because universals are our means of knowing causes that (what we might call) metaphysical and epistemological composition relationships can be given this sort of uniform treatment.

With this all in mind, we can return to the idea of knowing primaries by contrast with their derivatives. A kind stands to its forms as a primary to derivatives, and (as we saw earlier in §2.3.2) Aristotle tells us in *Metaphysics* I.8 that:

> with reference to that which is called the kind none of the forms which belong to the kind is either the same as or other than it in form (rightly so, for the matter is indicated by negation, and the kind is the matter of that of which it is called the kind… (1028a21-3)

We grasp the kind by "negating" the differences that distinguish the forms from one another, i.e. by intensional division of the forms. This means, then, that we grasp the kind as the intelligible subject of certain forms, which forms we will then define in terms of the kind. Now, some kinds will, in turn, get defined as forms of higher kinds, but this will not be possible with the highest kinds—the primary kinds. Plausibly something analogous will hold with other sorts of constitution or dependency relations, and first causes will be defined simply as the causes of the things they cause—as a nature is defined a *principle* of motion and rest. Just as to have ἐπιστήμη of derivatives is to see them as following from their primaries, to have νοῦς of primaries is to see them as that from which their derivatives follow.

To confirm this interpretation would require a more intensive study of Aristotle's definitions of principles than there is room for here. But, however exactly Aristotle understands the grasp of primaries, it is clear that he thinks it is possible for us to think that we have arrived at them when we have not. This point is made in *Posterior Analytics* I.5:

> We must not overlook {the fact that} erring often occurs and what's proven does not belong primitively universally, {though} it seems to be proven universally primitively. We make this mistake when either {i} there is nothing from higher to take (λαβεῖν) besides the particular [or the particulars] or {ii} there is but it is unnamed over objects that differ in form, or {iii} one chances to prove an existent as a whole in part; for the demonstration does belong to the things in {the} part and will be of everything; but, just the same, the demonstration will not be of this primary universal. (74a4-12, cf. *Prior Analytics* I.35)

The "primary universal" is the highest universal for which a given attribute holds (e.g., triangle in the case of the attribute of having an angle sum equal to that of two right angles), and it is at this level of universality that demonstrations must occur to capture causal relations (as we saw in §2.5, when we looked at *Posterior Analytics* I.24). The present passage treats cases of inadvertent failure to rise to this level of universality. In such cases, a deduction is falsely thought to be a demonstration and its premises to be principles. Three causes of this sort of error are discussed, and at least the second consists in the lack of concept (specifically a concept for a kind).[50] This brings us to our final topic: the introduction of new concepts.

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[50] There is some question as to how to understand the three cases Aristotle describes here (and how they correspond to the examples he discusses for the remainder of the chapter). The third case is clear enough and of least interest to us. The primary problem concerns what the first is supposed to be, and how one answers it will have some influence on how widely one construes the second. Not much turns on this for my immediate purposes, the second case clearly involves unnamed kinds (whether or not it extends to all of them). First it is worth considering the possibility that the first case is not meant to be distinct from the second: the disjunction between them may be a sort of correction or

4.3 FORMING NEW CONCEPTS

4.3.1 Making up names

At the beginning of Chapter 2, we identified concepts with affections of the soul that Aristotle thinks are normally symbolized by words and serve as terms in deductions. These terms are universal and we have seen that they enable us to grasp causal relations and thereby to demonstrate. At the close of the last section we saw Aristotle blaming some failures to demonstrate on the lack of a word—or, more precisely, on lack of a named thing that ranges over a group of differing objects and can be "taken" and used as a term in a demonstration.

The normal state of affairs is for such things to be named, and their being named facilitates their functioning as terms. Thus he often advocates "making up names" ("ὀνοματοποιεῖν"), an act that he seems to regard as a integral part of conceptualizing a domain—of distinguishing (διωρίζειν) the forms and kinds in it.[51] This is a process that can be

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else express an ambivalence about how to describe a single sort of case. Suppose that (to elaborate on one of Aristotle's example) we had no concept "triangle" as distinct from the concept "isosceles" (either because we had only encountered isosceles triangles or because we somehow failed to notice the similarities between isosceles and scalene triangles); would there be nothing higher than isosceles to "take" or would there be a nameless higher thing? That depends on whether you think that the higher thing is there for the "taking" when there is no concept for it (or at least no name). On Aristotle's view the triangles are such that they ought to be "taken" together, and in this sense there is something there to take—there is a kind there that needs to be conceptualized, even though the kind doesn't exist as a mind-independent identical thing in the triangles; nevertheless there is no term (expressed by a name) that one can "take" and in this sense one might say that that there is nothing higher to take. Assuming, however, that the two cases are meant to be distinct, then the first must refer to a weaker sort of unity between the instances than is present in the second but one still strong enough to make universal demonstration possible and necessary. Since the second case clearly refers to kinds, Aristotle likely has in mind cases of analogous unities which he doesn't think should be conceptualized, but which should nevertheless sometimes be demonstrated together—a sort of case he discusses, using very similar language, in II.14 at 98a20-23:

> Again, another manner is excerpting with respect to analogy. For one cannot take one same thing that squid-pen, thistle, and bone should be called; but there will be things that follow these also, as though there were some such single nature. (98a20-23)

The link to this passage, and to others that we will discuss in the next section, strongly favors understanding the first two cases in the present passage as distinct, and favors the current interpretation.

[51] One example is discussed in the text below. Until then, I offer two examples to support the claim, quoting at some length so as to give a sense of the enterprise in which Aristotle is engaged:

performed correctly or incorrectly and he sometimes criticizes other thinkers for doing it improperly and (occasionally) for inappropriately introducing terms. We have already seen one such criticism, from *Parts of Animals* I.4.[52] Let us turn back to that passage now and use it as a point of entry into the topic of the role of words in concepts and concept-formation.

> Someone might puzzle over why men have not denominated (προσαγορεύειν), by some one name encompassing both at once from above, one kind, which comprises those of the animals that are aquatic those that fly. For there are some

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> There are also three other means that, though they bear a likeness to one another, differ from one another; for they all concern what's common in speech and action, but they differ, since one is concerned with truth in these things, and the others with pleasure: the first {being concerned with} this in kidding and the second in everything with respect to lifestyle. So, we must discourse about these also, so as to observe better that the mean is praiseworthy in everything while the extremes are neither praiseworthy nor right but blameworthy. Most of these also are unnamed, but we should try, as in the other cases, to makeup a name that makes each plain and easy to follow. So, then, concerning truth: let's say the intermediate {person} is a sort of "true" (ἀληθής τις){person} and the mean is "trueness"; pretense to greatness is "boastfulness", and its possessor is "boastful"; {pretense} to meanness is "irony", and its possessor "ironic". Concerning the pleasures in kidding: the intermediate {person} is "witty", and the condition "wit"; the excess is "buffoonery", and its possessor a "buffoon"; and the deficient one will be a sort of "bore", and the state "boorishness". Concerning the remainder of pleasure, which is in lifestyle: the one who is pleasant as one ought to be is "friendly", and the mean "friendliness"; the one who exceeds, if it is not for the of anything, is "obsequious", but if it is for his own advantage, he's "ingratiating"; the one who's deficient and unpleasant in all things is a sort of "contentious" and "ill-tempered" {person}. (*Nicomachean Ethics* II.7 1108a9-30)

> A citizen simpliciter is defined by nothing so much as by participation in judgment and office. But, of offices, some are delimited with respect to time so that, either one cannot officiate twice on the whole, or only after some determinate time; but there is also indefinite {office}—e.g., the a judge's or assemblyman's. Now, maybe someone would claim that these are not officers and don't participate in office because of this; yet it is ridiculous to deprive the most authoritative {people} of an office. However, it makes no difference; for the account is only about a name; for what's common to a judge and an assemblyman is unnamed by something that one should call them both. In order to distinguish, let it be "indefinite office". Now, we posit those who participate in this to be citizens. (*Politics* III.1 1275a22-33)

Notice that, in the *Ethics* passage, Aristotle speaks explicitly about "making up names", saying that it is necessary to do this "here as in other cases". The names are made by pressing words into specialized usages (indicated by the occurrences of "τις") and forming abstract nouns from adjectives. (Cf. *Categories* 7, where he advocates making up nouns like "ruddered" ["πηδαλιωτόν"] and "headed" ["κεφαλωτόν"] to serve as the relatives for "rudder" and "head" [7a13, 16].) In the *Politics* passage Aristotle introduces a descriptive phrase (presumably the sort of thing he has in mind when he speaks of a "λόγος ὀνοματώδη" at *Posterior Analytics* II.10 93b30-1). Turning back to the present texts, Aristotle is clear in the *Politics* passage about his reasons for thinking there is a distinct type of office common to the juror and the assemblyman and deserving of a name. He is less clear in the *Ethics* passage, which is taken from his initial enumeration of the virtues of character, each of which is later treated in more detail in III.6-V. The discussions of most of the unnamed virtues include justifications of the existence of a distinct state that requires a name. (See Section II of my unpublished paper "Aristotle's Non-Dialectical Methodology in the *Nicomachean Ethics*".) Even in this initial discussion, however, we glimpse his reasons, and we see clearly a point that is less obvious in the more detailed later treatments: that the introduction of terms for these several states is part of a project of systematically conceptualizing a domain in which only some of the relevant forms have been previously distinguished and named.

[52] Another can be found in *Rhetoric* III.13, quoted and discussed below in §4.3.3.

> affections common to these (and to all other animals). Just the same, they are correctly distinguished in this way. For, while whichever of the kinds differ in degree and in the more and the less have been yoked together under one kind, whichever are analogous {have been kept} separate; I mean, e.g., a bird differs from a bird in "the more" and in degree, (for the one is long-feathered and the other short-feathered), while fish differ from a bird by analogy (for what a feather is for this one, a scale is for the other.) But this isn't easy to implement (ποιεῖν) in every case; for many animals have the same affections analogously. (644a12-23)

When we looked at this passage earlier (in §2.2.1), we were focused on the more-and-less relations that hold between the members of a kind. But consider it from another perspective: there is a strong implication here that kinds are in some way man-made, and in particular that names play some role in yoking things together into kinds. Notice that the puzzle raised is not whether there *is* a kind embracing flying and swimming animals, but why men do not *refer to them by one name* (as Plato does by the name "swimmers" at *Sophist* 220b). The reason Aristotle gives why we have not, and ought not to have, introduced such a name is not that there isn't a kind to be named;[53] rather, he answers by sketching approvingly a standard that that lies behind an existing practice of yoking some things together into kinds and keeping others apart.

Moreover, sometimes when Aristotle does speak of whether a kind exists, he seems to treat this as dependent on whether there is a name for it. Fourteen Bekker lines below the previous passage he writes:

> Perhaps, then, it is right, on the one hand, to speak in common in accordance with kinds wherever {one} is spoken of properly (καλῶς), men having defined it well, and has a single common nature and, in it, forms that are not very different ({e.g., the kinds} bird and fish, and {likewise} if there is any other that, though unnamed, comprises (περιέχει) the forms in it like a kind), and, on the other hand, wherever there is not such {a nature}, {to speak} particularly (e.g., about man, and {likewise} if there is any other such {form}). (644b1-7)

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[53] To my knowledge, the only text in the corpus that says that, in some case, there is not or should not be a name because there is not a kind is *History of Animals* II.15 505b28-32, where we find the following list of blooded animals:

> These are man and the live-bearers and egg layers among the quadrupeds, and bird and fish and cetacean and if there is some other that is unnamed because there is not a kind, but rather simple forms applying to the particulars—e.g. snake and crocodile.

The text here is disputed and the passage of dubious authenticity. Balme brackets it entirely on the grounds that it contradicts material in the surrounding text on a number of points. See his forthcoming commentary for discussion of the problems here and on the emendations proposed by earlier editors.

The unnamed thing is said to comprise forms "like a kind", which suggests that, it is not itself a kind, so long as it is unnamed.[54] On the other hand, Aristotle does occasionally speak of "unnamed kinds"—e.g., in *Posterior Analytics* II.13, he says of a collection of items predicated in the being of a triad: "if this isn't a triad's being, it is some such kind, either named or nameless" (96b6-8).[55]

Given the interpretation of sameness in kind developed in Chapter 2, above, we should not be surprised to find some ambiguity in Aristotle as to whether kinds exist independently of us; for we found there that, though there is a relationship in virtue of which instances are the-

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[54] Consider also the following passage from *History of Animals* I.6:

> Among the remaining animals {viz. those that aren't birds, fish, cetaceans, shellfish, soft-shells, softies, or insects} there are not greatest kinds; for one form does not comprise many forms; rather sometimes the form is itself simple, not having a difference (e.g., man), and other times it does have {a difference} but the forms are nameless. (490b16-19)

Seemingly, having forms that comprise further forms is being used in the first passage as a criterion for being a greatest kind; and, because this criterion is not satisfied by any group of animals outside of the seven greatest kinds he has already named, Aristotle denies that there are any further greatest kinds; but, given what he says in the last clause of that same sentence, the criterion only fails to be satisfied if unnamed forms don't count as forms. The situation is complicated, however, by what he goes on to say about quadrupedal live bearing animals:

> Now there are many forms of the kind of the quadrupedal and live-bearing animals, but they are unnamed; rather, {one} says {them} particularly, so to speak: as man is stated, {so is} lion, deer, horse, and the rest of these {stated} in the same manner (since there is indeed a certain single kind applying to those called equines—e.g., horse, ass, mule, γίννος, ἴννος and what in Syria are called a half-asses—they're called half-asses because of a likeness {to asses}, {despite} not being the same form *simpliciter* {…}). That's why, taking these separately, it is necessary to study the nature of each of them. (490b31-a6)

Is he acknowledging that there are really forms comprising the uncuttable forms in this case, even though there are not names for them? If so, it is unclear why he thinks we still need to study the uncuttables particularly rather than under these forms (presumably he is allowing that we can study them under the higher universal *quadrupedal live-bearing animal*, since he shows no hesitation in treating this as a kind—what's at issue is only whether it's a *greatest* kind). Nevertheless he does seem to say that there are forms there, and he does often seem to treat this kind as a greatest kind (e.g. II.15 505b25-32). Possibly, he thinks that this kind has not been divided into forms more proximate than the uncuttables but that it is susceptible to such division, having undergone which it would then qualify as a greatest kind. If this is right, his treatment of it as an greatest kind in another passage could be due to any of (at least) three reasons: (1) the passage represents a later stage in the investigation at which the requisite division has been performed; (2) the passage predates *History of Animals* I.6, in which he is reconsidering his previous treatment of live-bearing quadruped is a greatest kind; (3) Aristotle sometimes treats life-bearing quadruped as a greatest kind provisionally, on the assumption that the requisite division will eventually be carried out.

[55] Several other examples can be found in the *History of Animals*, where he speaks of kinds that are "unnamed by a single name". In such cases the forms of the kind are named severally, but the kind as a whole can only identified by a descriptive phrase. At I.6 490b11, he explicitly includes "τὰ μαλακόστρακα", and, by implication the other greatest kinds of bloodless animals, in this category. I.5 divides flying animals by the material out of which their wings are made—feathers, membrane, or skin—and gives examples of animals that fall into each category, before telling us that "while the feathered kind of animal is called bird, the remaining two are {each} unnamed by a single name" (490a13-14). (See also, 623b5, though the text here is disputed). There is also at least one mention of an unnamed εἶδος: *Meteorology* II.4 tells us of one εἶδος of exhalation "while the whole is nameless, it is necessary to denominate it as a sort of smoke, using universally {the name that} applies to the part" (359b30-32).

same-in-kind, the kind itself only exists as a unitary object when considered relative to our intellectual abilities: the kind is not prior to our concept of it, except insofar as the relations between the kind-members give them a potentiality to be conceptualized in the relevant way by us. We have not, however, observed the importance Aristotle places on names before. This is not an idiosyncrasy of the present passage. We can see this emphasis also in *Topics* VIII.2:

> While in some inductions it is possible to ask for the universal, in some it is not easy, because a common name has not been laid down for every likeness; rather, whenever anyone needs to take (λαβεῖν) the universal, he says "{it's} so in all such things". But this—which of the things put forward are and aren't "such"—is among the most difficult things to distinguish (διορίζειν). And, besides this, {people} often lead one another astray with respect to the accounts, some claiming things to be alike which are not alike while others dispute the likeness of things that are alike. That's why one must try oneself to make up a name applying to all such things, so that it won't be permissible for the defense to dispute {on the grounds} that the cited thing is said in an unlike {way} (ὡς οὐχ ὁμοίως τὸ ἐπιφερόμενον λέγεται), nor for the questioner to allege that {it's said in a} like {way} to what's been said, since many of the things said {in an} unlike {way} appear to be said {in a} like {way}. (157a21-33)

In outline, the difficulty with which Aristotle is concerned is clear: an induced conclusion needs a subject term. Without one, the inducer will be forced to resort to a vague stand-in like "all such things", which because, of its vagueness, can be extremely difficult to apply even when one is trying one's best to be objective, and this difficulty makes it easy for unscrupulous interlocutors to twist the argument to their partisan ends. The vagueness of a conclusion about "all such things" is due to its not being genuinely universal. It makes reference to the particulars in the sample (be they numerical individuals or lower universals); Because these particulars may be similar and dissimilar to one another and to any new particular in myriad ways, there will always be some question as to whether the new particular is like the ones in the sample in the way that would warrant ascribing to it the characteristics that have been observed in them.

It is worth noting that this passage confirms our findings in §4.1.2, above. Knowing that a certain characteristic holds of all things "such as" a number of particulars, without being able to articulate what those particulars have in common, is a perfect example of ἐμπειρία, and the present passage tells us that this state comes about, in argumentative contexts at least, as a result of lacking a name. The person of ἐμπειρία, then, is someone who lacks certain concepts, rather than the one whose concepts are insufficiently precise, since once he "makes up a name" he will be in a position to take the universal properly.

Aristotle cannot, however, think that simply introducing a name will make the difference. Since, as he tells us in *Posterior Analytics* II.7 (92b31), "one can posit a name for any sort of λόγος". One could simply assign the name "cloak" to some λόγος of the form "all things such as Socrates and Callias", and this would not be a cognitive advance. Just as people now bicker over whether the new particular is such, they will bicker over whether it is a cloak; for this name can no more transform this λόγος into a single term than it can for the λόγος "white man" or "man and horse" (see above, §2.1.1). Aristotle must, then, have more than the mere introducing of a name this in mind when he speaks of "making up a name". We can see an indication that this is so already in the present passage. He tells us that the reason we cannot ask for the universal in certain inductions is that "a common name has not been laid down for every likeness." The names that facilitate inductions then, are laid down *for likenesses*, and what one must try to do when inducing in a case where no such name has been laid down is to identify the likeness relevant to the induction and make up a name for it. This likeness will have to be one of the concept-basic relations that we discussed in §2.1.2—a sameness in form or in kind, or perhaps an analogous, focal, successive unity.

Presumably it will not always be possible or necessary in every case to introduce a name in the sense of a "vocalization significant by convention, without time, none of whose parts is significant in separation".[56] What is strictly necessary to avoid the troubling consequences is something that can function grammatically as a subject or predicate and which is understood by the parties concerned to apply to a plurality of objects insofar as they are alike in a certain determinate way. This function is never far from Aristotle's mind when he advocates making up names.[57]

However there is another function served by the making up of names in Aristotle, that is not strictly necessary to avoid the kinds of difficulty and non-objectivity that Aristotle describes in connection with induction. The *Topics* example (and the nature of the enterprise in that treatise

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[56] *De Interpretatione* 2 16a19-21.

[57] It is worth noting, in this connection, that the one time he uses the term semi-pejoratively it is to dismiss the idea that there is any value to introducing names as such, apart from their value in grasping objects and the relations between them:

> It should make no difference whatever it is called; for it is not because we want to make up names that we have divided them in this way, but so that we should not overlook whatever differences there may be among them. (*Topics* I.11 104b36-a2).

generally) suggests that the induced conclusion will be pressed immediately into service as the major premise in a deduction. He likely has in mind a situation like this one, from Plato's *Euthyphro*:

> We speak of something that is carried and of carrying, of what's led and of leading, of what's seen and of seeing, and you understand that these things are all different from one another and how they differ? {…} So there is something that is loved and, something different from this, the loving? {…} Now tell me, is the carried thing a carried thing because it's being carried or for some other reason? {…} And the led thing is so because its being led, and the seen thing because it's being seen? {…} Then it is not because it is a seen thing that it gets seen, but, on the contrary, it's a seen thing because it gets seen; and it is doesn't get led because it's a led thing, but it's a led thing because it gets led, and it doesn't get carried because it's a carried thing, but it's a carried thing because it gets carried. Is what I mean clear, Euthyphro? I mean this: if something gets changed (γίγνεται) or affected (πάσχει), it does not get changed because it is a changed thing (γιγνόμενον)—rather it is a changed thing because it gets changed, nor does it get affected because it is an affected thing (πάσχον)—rather it is an affected thing because it gets affected. Or do you not agree to this? {…} Then is a loved thing something that is either changed or affected by something? {…} Therefore it too is such as the previous things: it is not because it is a loved thing that it gets loved by those who love it; rather it is a loved thing because it gets loved. (*Euthyphro* 10a5-c11)

Here Socrates manages to state his conclusion with full generality, but it is difficult to regard the cumbersome and disjunctive subject of his induction as a name. If he (or Plato) had longer-term aspirations for the induced conclusion, he might have used less unwieldy and more "name-like" language (though likely he would not have been able to devise a plausible single-word name). Aristotle regularly introduces new words or phrases, that become standing parts of his vocabulary in this way. Indeed we needn't look beyond the chapters we have been discussing in the present section to find an example of him taking the universal from an induction in this way:

> Roughly, kinds have been defined by the figures of the parts and of the whole body, should they bear a likeness—e.g., the kind of the birds has affections related in this way and the kind of the fish and the softies and the shellfish. For the parts of these differ not by analogous likeness, as in {the case of} man and fish featuring bone relative to thistle, {but} by "the more" in bodily affections—e.g. in largeness, smallness, softness, hardness, smoothness, roughness, and such things—on the whole, in the more and the less. (*Parts of Animals* I.4 644b7-15)

Here we have an induction about the sorts of likenesses that have (properly) served as the bases for groupings into kinds. Aristotle moves from a list of particular more-and-less variations to the universal "the more and the less" (τὸ μᾶλλον καὶ ἧττον).

The neuter article allows "τὸ μᾶλλον καὶ ἧττον" function for Aristotle in a name-like manner; indeed, one is sometimes tempted to hyphenate it in translation. This name-like character is more obvious in the cases of numerous other stock Aristotelian phrases ("τὸ τι ἐστιν" "τὸ τι ἦν εἶναι", "τὸ καθ ἕκαστον", etc.) for the sake of translating which a sizeable portion of our philosophical vocabulary was formed. When we add to these the words that Aristotle introduced into Greek ("καθόλου", "ἄμεσος", "ἐνέργεια", etc.) or pressed into special service ("κατηγορία", "ὕλη", "ἴδιον", etc.), we begin to get a sense of the extent to which names he made up are standing features of Aristotle's thought—and, indeed, of our own.[58]

By "encompassing simultaneously from above" appropriately related existents and representing them in speech, these names help bring kinds into existence as unitary objects for thought, about which, we can collect knowledge, which can then be applied to their instances. To make up a name, for Aristotle is to form a concept, though the concept is not just the name. It is the capacity to regard particulars universally—to de-specify them in thought, in the case of kinds, or to perform some analogous operation in other cases. To my knowledge, Aristotle never tells us just what role words play in this ability, but we can seen enough to infer at least a part of their role. Universality is a feature of a thought in virtue of which it is able reveal a causal connection by serving as a term in a demonstration. But in order to function as a term, at least in speech and likely also in thought, the universal must be somehow represented or embodied by a perceptible symbol that can be placed in different relations to other terms.[59]

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[58] There are also a number of name-like phrases that regularly serve as terms in Aristotle's zoology, including, notably all of the labels by which Aristotle describes the greatest kinds of bloodless animals ("τὰ ὀστρακόδερμα", "τὰ μαλακόστρακα", "τὰ μαλάκια", and "τὰ ἔντομα"). In each of these cases, though there is only one word following the article, the word is an adjective which the article allows to function as a substantive. Interestingly these descriptions are not found in the singular, which shows that they do not function fully as names. For discussion of this and other issues connected with these zoological terms, see Balme 1962 90-91, Gotthelf 1985a 31, and Lennox 200b1 60-61.

[59] They may also play some role in the storage of universal knowledge, since thoughts cannot be remembered *qua* thoughts, but only *qua* φαντάσματα. See above, §3.3.2 n. 87.

4.3.2 Concepts as components of a filing system aimed at explanation

Aristotle's discussion, in *Parts of Animals* I.4, of the proposed kind embracing fish and bird and, more generally, of the conditions under which it is and is not proper "to speak in common in accordance with kinds" reflects his engagement (in a specifically zoological context) with the problem that he treats in *Posterior Analytics* I.24. In that chapter he concludes that demonstrations must take place at the highest possible level of universality. In II.14 he outlines a method by which we can both discover what this level is and acquire the premises needed to demonstrate at it. The discussion, which includes reference to the problem of potential terms that lack names, helps to make clear why concepts are necessary in some cases but not in others. I begin with the beginning of the chapter

> In order to possess the problems (Πρὸς δὲ τὸ ἔχειν τὰ προβλήματα), you ought to select from both the anatomies and divisions, and to select in such a way that, supposing the kind common to everything (e.g., {animal}, if the things being studied are animals), {you select} what belongs to all animals, and, having taken this, you then select what follows all {instances of} the first of the remaining things—e.g., if this is bird, what follows all birds—and in this way always {select what follows} the nearest thing; for it's clear that we will already be poised to say why the things that follow belong to what's under the common thing—e.g., why they belong to man or to horse. Let animal be in the A position, {let} B {be} the things that follow every animal, and {let} certain animals be in the C, D, and E positions. Then it's clear why B belongs to D, for it's because of A. Likewise in other cases, and always the same account applies to the lower things. (98a1-12)

In the jargon of the *Organon*, a "problem" is a proposition to be proven; in the specific context of the *Posterior Analytics*, it is a demonstrandum.[60] There is some ambiguity as to what it is to "possess" (ἔχειν) a problem: is it "to formulate the propositions to be proved" or to "acquire premises appropriate to its solution"?[61] We needn't pursue this question here, however,

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[60] For discussion of Aristotle's use of term, including some of its historical context, see Lennox 2001d.

[61] The quotes are, respectively, from Ross (1949 662) and Barnes (1994 250) and express their contrary interpretations of the passage. Lennox (1987a 97ff, cf. 2001c 47ff, 2001d 82) argues a position that can be seen as incorporating elements of these two. He distinguishes between two types of demonstrations (or explanations): those in which a form's possession of a feature is deduced from its membership in the widest kind to which the feature belongs, and those in which the possession of a feature by such a kind is explained. II.14's method enables one to find all the demonstrations of the first type, and so to come to see the features as primarily features of the kinds, and this puts one in a position to seek out demonstrations of the second type. It is controversial whether demonstrations of the first sort qualify as genuine explanations or demonstrations at all (see Lennox 2001c 67-8 n.16 for some of the issues here and for the evolution of his own position); but, however this controversy is to be settled, the sort of progression Lennox describes is surely present. On Lennox's account, we can see II.14 as telling us how to arrive at

since it is clear that Aristotle thinks the described method will contribute to both pursuits.[62] Moreover, both pursuits are clearly in view in *Prior Analytics* I.27-30, which provides a more elaborate version of the same method.[63]

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demonstrations of the first sort, and thereby how to pose demonstranda of the second sort. There is still, however, the (semantic) question as to what it means to "ἔχειν τὰ προβλήματα". Does it mean to solve the problems that can be solved with demonstrations of Lennox's first sort or to frame the problems the solution of which requires demonstrations of the second sort?

[62] The method will put one in a position to demonstrate that a feature belongs (even) to the widest kind to which it belongs (in those cases where this is demonstrable at all); for the middle term for such a demonstration will have to be something else that belongs to this kind, and which (assuming that we know of its existence) will be made salient by the method of selecting. There is some question as to how we are to know which of the coextensive terms is the cause and which the effect. This gets some attention in II.16-17 (cf. I.13), though Aristotle's answer is somewhat unclear. Hankinson (1998 164-167), who favors Aristotle's position over "modern accounts with eschew the notion of cause as an anachronism to be replaced by directionless functional relations", speculates as to Aristotle's answer. Speaking of how we know that the Earth's imposition is the cause rather than the effect of an eclipse and that the planets' failure to twinkle is an effect rather than a cause of their nearness (cf. I.13 78a22-39), he writes:

> we assume that phenomenal properties such as {…} steady shining and obfuscation rest upon, and hence are to be explained by, other ontologically more basic facts.

We do surely assume this about the phenomenal properties mentioned here; but it cannot be because they are phenomenal—i.e., observable—that we assume them to be effects. Aristotle sometimes allows that we can observe causes. If we were on the Moon, he tells us, we would observe the Earth's imposition (II.2 90a26-30, cf. I.31 88a12-17). In such a case we would know only by inference that (from the vantage point of someone on the Earth) the Moon had ceased to shine. In this case the effect which is normally, but not presently, observable would have to be inferred from the cause which is normally, but not presently, unobservable. Moreover there are actual cases in which we can perceive causes as well as their effects. Someone who is on the Earth during a lunar eclipse and looking up at the sky can see the Moon's darkness as well as (if he looks down at the ground) its consequent failure to cast a shadow. Hankinson goes on to a suggest that we can tell what is prior to what experimentally by seeing which factor we can change by changing the other, but he doesn't point to any evidence of such experimentalism in Aristotle, and though there may be some to be found, experiment is surely not a pervasive feature of his science. Material for a more satisfactory answer may be found in Aristotle's remarks (which Hankison describes as "obscure and apparently contradictory") about whether a cause and its effect are coextensive. He writes that the effect or major term must be coextensive with the causal middle term for a given minor term, which will be a form, but he allows that there may be other minor terms for which the same major is caused by a different middle (99b4-6). All and only the instances of the minor to which the middle belongs will possess the major, but there may be other minors that possess it, and there will presumably be some relation between the middles in virtue of which they produce the same major in different forms of minor (an issue to which II.15's discussion of the different ways in which problems can be related is surely relevant). If this is right, then we may be able to tell which is the cause and which the effect by appealing to wider causal knowledge. For example, the middle term for eclipse's belonging to the Moon is the Earth's intervention. The middle term for eclipse's belonging to the Sun is the Moon's intervention. Now these interventions cause eclipses (i.e. deprivations of light) in significantly different ways but both are explained though optics, and on the basis of optical knowledge it is clear that the intervention causes rather than results from the eclipse in each case. A similar approach can be taken to the example (introduced by Aristotle in II.16-17 [98a37-b17, b32-38, 99a23-29]) of broad-leafed plants which shed their leaves due to the coagulation of sap at the leaf stem. If there is solidification of sap at the leaf stem of a tree, then leaves will be shed, and if a tree sheds its leaves there will be such solidification. But leaf-shedding is an example of one thing's becoming detached from another, and surely there is more general knowledge about this sort of phenomenon that we can bring to bear. Presumably the leaf is shed when the sap hardens because hard things are brittle and brittle things break, and presumably the sap coagulates at the stem of broad-leafed plants because there is a sort of bottle neck where the sap moves between the broad leaf and the narrow stem. So, insofar as we can see the leaf (or eclipse) case as falling under still broader universals, we can see how Aristotle's theory of explanation can capture the directionality of cause and effect. At the widest level of generality in any given domain, there will be a subject and one or more sets of contraries that

The method consists in "selecting" (ἐκλέγειν) things, which will then serve as terms in demonstrations.[64] "Εκλέγειν" makes frequent appearances in the *Topics* and *Rhetoric*, and though "selecting" is probably the best available translation, it can be misleading; the following passages bring out its sense:

> One should also select {them} from written accounts and make charts (διαγραθὰς) putting them down (ὑποτιθέντας) about each kind separately—e.g., about good and about animal, and about every good, starting with what it is. (*Topics* 1.5 105b12-15)

> I call dialectical and also rhetorical those deductions that are about the things we call τόποι; but these common {τόποι} are about legal things and natural things and political things and about many things different in form—e.g., the commonplace of the more and the less; {…} But distinctive {τόποι} are whichever are from premises about each form and kind—e.g., about there are premises about natural things from which there are neither deductions nor enthymemes about ethical things {…} Those former {τόποι} will not make {people} intelligent about any kind; for {they're} not about any subject; but whosoever better selects these latter [premises] will unselfconsciously produce an ἐπιστήμη other than dialectic or rhetoric; for, should he chance upon principles, it will no longer be dialectic or rhetoric but rather that {ἐπιστήμη} of which he has the principles. (*Rhetoric* I.2 1358a9-26)

In both passages, what is being selected are premises, and it is clear that to select them is not merely to employ or single them out on a given occasion; rather the selection involves filing them away in a manner that will facilitate future use in the construction of arguments.[65] This is surely what is meant also in *Posterior Analytics* II.14 (and *Prior Analytics* I.27-31). In that chapter, however, what one is filing is not premises as such but terms.[66] Earlier, I analogized

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essentially belong to it. The other objects in the domain will be explained in terms of the belonging to a subject of certain of the contraries, or by the interactions of subjects differentiated by these contraries, etc.

[63] The *Prior Analytics* version is at once more detailed and more widely applicable: more detailed, because it includes treatment of negations, which would be necessary for finding demonstrations but are not mentioned in II.14; and more general, because it includes a means of finding deductions that are not demonstrations. (On the need for negative premises in some demonstrations, see *Posterior Analytics* I.15.)

[64] However, it is worth noting that the first two occurrences of "ἐκλέγειν" here, though in some manuscripts, are not in most. See Ross (1949 663) for his reasons for printing the text as he does.

[65] Thus Smith (1997) not unreasonably renders "ἐκλέγειν" "collect", though I do not think this quite captures its connotation. It seems to be regularly used to describe selecting people for jobs. Plato uses it to describe selecting rulers in the *Republic* (535a), and Liddell, Scott and Jones note that it often describes the selection of soldiers or rowers. To "select" a premise, then, is to appoint it to a position on one's cognitive staff, or (to change the metaphor) to add it to one's cognitive arsenal).

[66] However, this distinction can be overstated: the *Prior Analytics* chapters do speak occasionally (e.g., at 43b1) of selecting premises; and to select something *as a ὑπάρχον of a subject* is, in effect, to supply oneself with a premise predicating it of the subject.

having a concept to having a file folder. Aristotle is advising us here to go through anatomies of animals—i.e. lists of their parts and possible of other features, and to file in the "animal" folder all the characteristics that all animals have, then to proceed to the kinds into which animal is divided (e.g. bird) and to file in each of their folders all of the remaining characteristics possessed by all members of the kind, and so on down to the level of uncuttable forms.[67] At the same time, we should file in the folder for each characteristic all the things that follow it. The resulting filing system will put us is a position to see what terms need to be demonstrated of

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[67] There is some controversy over what "anatomies" means in this context. Normally Aristotle uses the word to refer to dissections and written accounts of them, but there's reason to doubt that he's referring to them here, because

> such a reference would not be natural in a purely logical treatise; it would apply only to biological problems, not to problems in general, and it is ruled out by the fact that the words that follow describe a purely logical procedure (Ross 1949 664)

Mure (1928) comments that

> ἀνατομή seems to mean *that* analysis of a subject, for the purpose of exhibiting its properties, which would precede the process of division exhibiting the true generic character in virtue of which the subject possesses those properties.

He goes on to note that Bonitz thought the term was being used synonymously with "διαίρεσις". Ross reads the passage this way as well, commenting that if Aristotle had meant what Mure thought "he would probably have devoted some words to explaining the distinction between the two things". But if he had not meant there to be *some* difference he probably would not have devoted six words ("τάς τε ἀνατομὰς καὶ τὰς διαιρέσεις") to a thought that could more clearly have been expressed with two ("τὰς διαιρέσεις"). I agree with Ross, however, that is unlikely that the reference here could be meant to refer exclusively to zoological anatomies (or, as Barnes [1994 250] and Lennox [1987a 97 n. 16, 2001b 115] think, to the lost work reporting on them, which he references sometimes in the zoological treatises), though this is the only other sense in which the word appears in Aristotle. On balance, I think it is most likely that the term is being used in a sense extended from its meaning in zoological anatomy. In the application of the described method to zoology, there is a natural function to be served by literal anatomies (reports of dissections) which is distinct from that served by divisions, and this function will need to be served with in other domains as well. The method requires determining, for each taxon in a taxonomic division, what belongs to it. In the zoological case you would determine whether, say, all birds have gizzards by turning to your anatomies of birds. Thus the divisions will provide the subjects (animals, birds, hawks, etc.) and the anatomies the predicates (wings, gizzard, heart, etc.) (I see these respective roles for anatomies and divisions as following naturally from Lennox's view that the II.14 method represents a stage "Between Data and Demonstration" in which one organizes one's raw data so as to facilitate later demonstrating. If the anatomies are literal reports of dissections, then each anatomy will describe the parts and features of the specific dissected animal; before one can make demonstrative use of this data, one will have to run through one's divisions and find the right level of generality at which to ascribe each part. Lennox himself, however, describes the divisions as a source of predicates [1987a 98] and, more generally, writes as though they and the anatomies play the same role [cf. 2001c 48]; perhaps he is envisioning more complex divisions in which much but not all of this correlating work has already been performed.) A similar procedure will have to be performed in other fields as well. To determine whether all planets exhibit recession, for example, one would need to look to astronomical charts, which would contain data about the planets individually. "Ἀνατομή", could be naturally generalized from its root meaning of a dissection of an animal or a report on one to anything that documents the parts or attributes of specimens considered at a low level of generality. Possibly this is the sort of thing Mure had in mind by an analysis of a subject that exhibits its properties without its "true generic character", but his statement is misleading at best. The distinction between a διαίρεσις and an ἀνατομή is not that the former has greater explanatory depth than the latter; for διαίρεσις does not, on its own, explain anything. The relevant difference is that between a taxonomy and a list of something's parts or attributes. Before one can be in a position to demonstrate, one needs to combine the information encoded in both.

which (e.g. wings of birds) and to easily find the middle terms through which these demonstrations can be effected.

The process as described requires at least the rudiments of this filing system to be already in place. To proceed, we must have an arsenal of concepts and quite a bit of knowledge of their interrelation. Indeed, the passage presupposes that we have already engaged in the sophisticated conceptual tasks of taxonomic division and of anatomizing objects; likely it is referring us to the written up results of work. Aristotle soon acknowledges, however, the possibility that it may be necessary to add new folders to the filing system:

> Though we now we speak in accordance with the common names that have been handed down, it is necessary to enquire not only in these cases. Rather, also, if any other common attribute (ὑπάρχον) should be observed, then, after selecting it, {enquire into} what it follows and what follows it—e.g. possessing a vase belongs to the possessors of horns (τοῖς κέρατα ἔχουσι) {as does} not being amply-toothed, then {inquire into} what follows horn possessing (τὸ κέρατ' ἔχειν). For it is clear why what was mentioned belongs to these things; for it belongs to horn possessing. (98a13-19)

The situation Aristotle describes here is, like the one we saw him discuss in *Topics* VIII.2, a case of an induction in which we lack the name necessary to "take the universal". There are some differences of course: in the *Topics* example, Aristotle envisages inducing a single universal proposition from particulars admitted by an interlocutor and then (likely) putting this proposition to immediate deductive work, whereas, in the present case, the particular premises will be drawn from anatomical research, and, instead of inducing a single new proposition, we will relate it at once to a number of terms that follow it and so situate it in a network of terms from which we can produce enumerable propositions.[68]

Notice that Aristotle effectively introduces a name here. Granted, "τὸ κέρατ' ἔχειν" is a phrase rather than a single word, but we have seen that this is sometimes necessary, and the otherwise unnecessary repetition of the phrase signals that it is now functioning as a term.[69] That

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[68] In reading the chapter in this way, I am following Lennox (2001c, cf. 1987a).

[69] Phrases of the form "τὸ X ἔχειν" appear with some frequency as terms in the demonstrations (endorsed or considered) in *Parts of Animals* (see 683a7, 868b26-7, 687a9, and, perhaps, 655b4). Of special significance is "τὸ πλεύμονα ἔχειν" ("lung possessing"), which III.6 tells us belongs in the οὐσία of certain animals for whom what is common is unnamed (669b8-13, see Gotthelf 1985b 31-33). The phrase reappears at 697a17 where lung-possessing is cited as the cause of an anatomical feature that he (incorrectly) ascribes to cetaceans. (On the error here, see Lennox 2001a 342.) "Τὸ τὸν πλεύμονα ἔχειν σομφόν" which could be thought of as a form of τὸ πλεύμονα ἔχειν" is also cited as a cause at 671a9-10. (On Aristotle's method of explaining an affection by reference to elements in the essence of a kind and then explaining variations in that feature with reference to variations in the kind, see Lennox

Aristotle means it to qualify as something like a name a name is confirmed by what he goes on to say:

> Again, another manner is select with respect to analogy. For one cannot take one same thing that squid-pen, thistle, and bone should be called (δεῖ καλέσαι); but there will be things that follow these also, as though there were some such single nature. (98a20-b3)

"Selecting with respect to analogy" is introduced by contrast to the manner of selection about which Aristotle has just illustrated with the example of "horn possessing". Therefore, when he differentiates this new manner by saying that "one cannot take one same thing" that the analogs jointly "should be called", he it is effectively telling us that one can do this in the earlier case. Thus there is one can therefore take one thing that can be "taken", which horn-possessing "should be called"—namely "τὸ κέρατ' ἔχειν".[70] He does not go so far as to call this a name, but it is presumably one of the name-like λόγοι alluded to in *Posterior Analytics* II.8 (93b29-30).[71]

Notice that Aristotle identifies this thing which horn-possessing should be called with a common nature; for the antecedent of "such" in the phrase "some such common nature" must be the "one thing" that can be "taken", and which the instances "should be called". Likely the idea is that, in calling the instances by the single name, one attributes the common nature to them.[72] Horn-possessing, which presumably qualifies as a kind, differs from the analogous grouping in that it possesses a single nature, whereas the group of analogs does not.[73] Recall that *Parts of Animals* I.4's advice on this matter:

1987a.) Interestingly, "τὸ κέρατ' ἔχειν" does not appear in the *Parts of Animals*, though we do find "τὰ κέρατα ἔχοντα" (meaning, in context, "their possession of horns") in III.2 at 663b18. That chapter discusses at some length which animals do and don't possess horns of various sorts, and offers explanations for these phenomena (including the one mentioned *Posterior Analytics* II.14, that animals with horns do not have a second row of teeth). The animals that do possess them are referred to as "κερατοφόρα" (663a18, b25, b35). Likely in the *Posterior Analytics* passage Aristotle prefers an infinitive to a participle because he wants to focus on the attribute of possessing horns, whereas a participial form would naturally be taken to refer to the horn-possessors (thus Lennox [2001 50-1] translates"κερατοφόρον" "horn-bearing animal").

[70] It would be a mistake to take this "should" (δεῖ) in a strongly normative fashion to mean that there ought to be a name. In *Politics* III.1 at 1275a30-32 (quoted above in n. 51), Aristotle says that there isn't anything common that a juror and an assemblyman should both be called and then goes on to introduce a common name himself.

[71] His not calling "τὸ κέρατ' ἔχειν" a name is consistent with his practice of denying that such kinds as τὰ μαλακόστρακα are named by one name (see above, n. 55). In these cases too, something that can function (approximately) as a name has been made up (if only by Aristotle himself).

[72] The failure to spell this out is typical of Aristotle's tendency to move readily between talk of linguistic, psychological, and existential items. On this tendency see §2.1.1 n. 17 and §4.2 n. 31.

[73] Horn-possessing, if it is a kind, is not a kind *of animal*, of course. It is an unnamed kind of *animal feature* consisting in the possession of a (named) kind of animal part.

> Perhaps, then, it is right, on the one hand, to speak in common in accordance with kinds wherever {one} is spoken of properly (καλῶς), men having defined it well, and has a single common nature and, in it, forms that are not very different ({e.g., the kinds} bird and fish, and {likewise} if there is any other that, though unnamed, comprises (περιέχει) the forms in it like a kind), and, on the other hand, wherever there is not such {a nature}, {to speak} particularly (e.g., about man, and {likewise} if there is any other such {form}).
>
> Roughly, kinds have been defined by the figures of the parts and of the whole body, should they bear a likeness—e.g., the kind of the birds has affections related in this way and the kind of the fish and the softies and the shellfish. For the parts of these differ not by analogous likeness, as in {the case of} man and fish featuring bone relative to thistle, {but} by "the more" in bodily affections—e.g. in largeness, smallness, softness, hardness, smoothness, roughness, and such things—on the whole, in the more and the less. (644b1-15)

Putting together some of the points made about natures, kinds, and analogs in this passage, *Posterior Analytics* II.14, and some of the other texts we considered in the last section, we arrive at the following view:

> There are things that share a single nature and differ from one another only in degree. In these cases, there will be other things that follow the common nature, and we ought, first, to make up a common name, with the aid of which we can regard the things sharing a nature as a single kind, and, then, to select the items that follow this kind. In other cases, things are related analogously; though such things do not share a nature, there are things that follow them as though they did, and one must make selections in these cases as well, though without making up a common name.

This raises a number of questions: What is a common nature? How do we make selections in the case of analogous unities? Is it never appropriate to make up names for analogous unities? Can't we make up names and form concepts for them without thereby imputing to them a stronger form of unity than they have? I will address the first of question in the next section. The remaining questions concern analogous groupings, and Aristotle says little to answer them, so I will comment on them only briefly before turning my attention to the common natures distinctive to kinds.

The first point to make here is that, as observed in §2.1.2, Aristotle does sometimes give single names to things he takes to be analogous unities. The clear cases here are metaphysical concepts such as "potentiality" and "actuality". Second, notice that what he is opposing in *Parts of Animals* I.4 is treating analogous groupings as though they were kinds, rather than introducing names for them as such. There is certainly a strong implication there and in some of the other

passages at which we've looked that named items will normally be kinds, but I know of no place where he says that it is never appropriate to name a group of analogs. What Aristotle is worried about in these passages is not primarily that we might have a name "body covering" which applies to feathers and scales, but that we might take this to be the *kind* of which feather and scale are members—that we might take a feather's membership in this analogous grouping to be part of what it is for it to be a feather.[74] So long as we do avoid this error there should be no problem with introducing names for analogous groupings or making selections about them. To extend our file-folder analogy, we ought not to file our feather and scale folders within a larger "body covering" folder, though we may have such a folder which will stand in some other relation to the folders for different body coverings, whereby information from it can be easily applied to them.[75]

Posterior Analytics II.17 tells us that analogous demonstranda will have their middle terms the same by analogy (99a15-16), and *Posterior Analytics* I.5 (discussed above §4.2.3) makes it clear that, in such cases, there is will be one universal demonstration rather than two analogous ones at a lower level of generality.[76] And this is clear too from what Aristotle says in *Posterior Analytics* II.14 about the need to make selections for analogous groupings. Why then do we not more often have names for these groups, and why does Aristotle not advocate making such names up? On these questions we can only speculate. Likely Aristotle thinks that, because they do not share a nature, groups of analogs will have fewer things following them than do

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[74] I take it that part of what it is for something to be a form of a kind is for each of its features (or of its essential ones) to be a form of a kind of feature belonging to the kind. This will not be so with the members of analogous groupings.

[75] Lennox (2001c 50) helpfully speculates about how the selection would likely work in the case of bone and its analogues:

> The three sorts of 'skeletal' parts referred to are related by analogy. But there may be predicates within the divisions being used which belong to all of them (as if they had a single common nature). Thus, 'excerpting' {ἐκλέγειν} by analogy' means searching 'the dissections and divisions' for *differentiae* common to subjects related by analogy. At *PA* 653b33-36, Aristotle says that "among those animals having bones, the nature of bones, being hard, has been devised for the sake of preservation of the soft parts, and in those not having bones the analogue <has been devised for this>, for example among some of the fish, fish-spine {= 'thistle'}, among others cartilage." Accordingly, *APo*. 98a20-23 may propose that certain capacities, e.g., hardness or brittleness, belong to each of these analogous parts in virtue of a common function that each plays in the life of its respective kind, or in virtue of a common material nature (since all these parts are earthen). Again, it might also mean that all three analogous hard parts are associated with soft flesh and viscera, an association which would naturally suggest the idea that the analogous parts play an identical functional role in their respective kind's life.

[76] Or at least it does if we read it as I recommend above in n. 50.

kinds. Because of this he may think that we can usually do without names for these groupings, identifying them instead with phrases like "blood and its analog" as Aristotle himself often does in his zoological writings.

4.3.3 Concepts and causal roles

Turning now to the common nature shared by members of a kind. What does it mean for such a nature to there for the "taking"? The first thing to observe is that "φύσις" is not being used here in the sense in which it is defined as a "principle of motion and rest" since horn-possessing is the example we're given of such a φύσις and it does not satisfy this definition.[77] More broadly, any kind will qualify as a φύσις in the present sense including derivative kinds and even ones that are not involved with movement at all—e.g., the kind triangle. *Metaphysics* Δ.4, gives us a number of usages for "φύσις", but even the most general, on which "every οὐσία is said to be a φύσις" (1015a12) is too narrow, as horn-possessing is not an οὐσία, except perhaps in an extremely

[77] It is significant in this connection that the term Aristotle has taken is "horn-possessing" and not "horn-possessor" or "horn-bearer" ("κερατοφόρον") (see, above, n. 69). A horn-bearer might be a kind of animal, which could in turn be identified with its nature (i.e., with its soul or certain of its soul-capacities). But I don't think that this is plausible with the case of horn-possessing. It is worth noticing, also, that Aristotle never treats horn-possessing as a subject to which predicates might belong in the way they might belong to animal or bird. At 98a1a-2 we are told to lay each of these two terms down (in its turn) and then to select the things that follow it. We are never told to suppose horn-possessing, and it is given as an example of a "common ὑπάρχον" (98a15), a term which stresses its role as a predicate, rather than as a subject. We are told to select what follows it. Such selections would likely be expressed with a formula common in the zoological writings "Of animals (or of animals of a certain sort—say, four-legged live bearing animals), whichever have horns (ὅσα ἔχει κερατα) have features X, Y and Z." Gotthelf (1988 110-11) and Lennox observed the ubiquity of this formula in the *History of Animals*, and Lennox (1987a 116) notes how the present case evokes it. One striking feature of this formula is that it does not predicate the thing that follows of the thing which it follows. Rather the subject is animal, which remains in the background. (The formula is a natural language equivalent of contemporary logic's "$\forall x(Fx \supset Gx)$", with "animal" serving to set the universe. By contrast there is no formula in modern symbolic logic that properly captures "Beak belong to all birds", or the equivalent "All birds have beaks".) This allows one to draw relations between predicates without making accidental predications (such as the "white is musical") or using terms that aren't unities (e.g. "white man"), when one hasn't yet identified the proper subject to which a predicate belongs. (See, above, §2.1.1 n. 13.) Before one would have reason to think that one had identified a new *kind of animal*, one would need find an overwhelming number of features counter-predicating with horn-possessing and likely to see that all these features stand in complex determinable-determinate relations with subordinate forms or superordinate kinds. And even at this point one might not have any reason to think that horn-possessing is essential to the kind, so it would be misleading to use it as a name. (Recall that, when making up names for unnamed things, we should do so in a way that "makes each plain and easy to follow" [*Nicomachean Ethics* II.7 1108a18-19], and naming something for an incidental feature would not do this.)

extended sense of that term. In any event, it is clear from other passages that Aristotle sometimes uses "φύσις" in a still broader sense. An especially obvious example of this can be found in *Metaphysics* Γ.2, where he writes that "existence and unity are the same and a single φύσις" (1003b23). Neither existence nor one is an οὐσία (much less a source of motion and rest). The conception of "φύσις" at work in this passage is quite thin, as must be the one in *Posterior Analytics* II.14 and *Parts of Animals* I.4.

In Chapter 2, I argued that the sameness of a kind or form—including the sameness of its nature—consisted in the commensurability of its instances, which enables us to de-specify them into intelligible matter. But notice that there are many respects in which bone and thistle do differ in the more and the less: bone is harder, for example. In §2.4.3, we found that kind-members must share numerous commensurable characteristics, with each falling within a range along its continuum causally related to that of the others along their continua. Now, for one characteristic (or range along a continuum) to be causally connected to another is either for it to be a cause or effect the other or for both to be effects of some third thing. In any case, since an effect follows its cause, the characteristics will each find a place in the network of items that follow one another, which *Posterior Analytics* II.14 tells us to construct. Likely something's "nature", in the broad sense in which that word is used in that chapter and elsewhere, is the set of relations of following and (especially) being-followed-by in which it stands. (Notice that this makes perfect sense of *Metaphysics* Γ's claim about existence and unity having the same nature; for both follow of everything.)

The function of a universal is to reveal causes, and each universal can be seen as revealing the causal role played by its instances (which role will be common to all the instances when the items they interact with are also considered universally).[78] I take it that "following" is a distinct relation from causality. Whereas there cannot be reciprocal causation (at least for a given type of cause), two terms can follow one another—i.e., they can convert. So, a nature (in the present sense) isn't quite a causal role—we might call it an "inferential role", to borrow a piece of modern jargon. But, for Aristotle, the point of this enterprise of selecting terms and what follows them is to point the way to causal connections, which he thinks are easily found once one

[78] That is: the causal role of this particular wing is distinct from that one because it involves the life of this particular bird whereas that wing's causal role involves the life of that bird; but, considered simply as wings, they have the same causal role in the life of birds considered as such.

knows what follows what. And anything that has an inferential role, for Aristotle, will have a (closely related) causal role. It is not entirely clear, then, if the nature (in the broadest sense) is the inferential or the causal role, but it shouldn't matter for our purposes, and it may be a mistake to conceive of the two as fully distinct from one another; to be an effect of something is, after all, to follow from it in a certain way.[79]

Aristotle is able to maintain that there is this close connection between inferential and causal role only because he does not allow terms for non-unitary things like "man and horse" or "white man" (or "grue" or "bagleet"). If he did, the number of possible inferences would multiply to infinity and the fact that one term follows from another would cease to indicate that there is any causal relation in the vicinity. But, if this approach makes the transition from a body of concepts and inferential relations between them to a causal account of a domain unproblematic, it is only because some sort of causal or proto-causal knowledge must already be involved in the formation of the concepts. This knowledge will be necessary to ensure that the things we are conceptualizing have the proper sort of unity.

Forming concepts only for things with features differ "in the more and the less" will not, on its own, ensure that we have the right sort of unity. White men, for example, differ in the more and the less from one another, just as men do, so this criterion is not sufficient to distinguish the proper groupings from improper ones. Moreover, every perceptible object differs in the more and the less of each of its perceptible attributes from every other perceptible object. This is true by the very nature of perception, because each sense modality has as its proper object some continuum along which it discerns objects. Any visible object is so in virtue of its color which will be lighter or darker than that of any other visible thing. Any tangible thing will be hotter or colder, wetter or drier, harder or softer, etc. than any other tangible thing.[80] The same point applies also to the common sensibles: any shaped thing will be larger or smaller than any other in each of its parts, in the degree of its angles or curves, etc.; any moving thing will be faster or slower than another.

Clearly, then, it would be impossible to discriminate a kind along any single continuum—how would one know where to divide? So kinds will have to be discriminated along

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[79] A certain amount of vagueness here is, unfortunately, unavoidable. Aristotle's general conception of a cause is not well understood, and the attempt to reconstruct it would be a substantial project in its own right.
[80] On the tactile continua, see §3.3.1 n. 64.

multiple continua, when one notices that a certain range along one coincides with a certain range along another. But this immediately raises the question of what makes this coincidence of characteristics *one thing*. The answer is, of course, that there are causal relations between these characteristics; and (some of) these must be grasped in some form—however approximately or imprecisely—if one is to form concepts; otherwise the "concepts" will not be *unities* and so will not be able to function as terms in thought.

Let us put aside, for the moment, the issue of how concepts might be formed directly from perception, and turn back to the sorts of cases we considered in the last section, in which a new concept is introduced into an already formed filing system. Here, whatever vagueness there may be about the details, it is easier to see how we might grasp that there is the requisite sort of unity: we notice that, there is a certain range of objects that, if "taken" and used as a term, would interact inferentially with our existing concepts in certain ways—other already identified things would follow it, and it could serve as a middle term between these things and several differing subjects which they are already known to follow.

We can only get limited mileage, however, out of the example of horn-possessing (at least as it is given in *Posterior Analytics* II.14), because we are not told how we might come to notice this characteristic in the first place. And, in any event, it hardly seems to be a new characteristic in addition to horns which much have already been conceptualized. It will be helpful, then, to find another example, ideally one where part of what is at issue is where and whether to divide up a continuum of some sort. Such an case can be found in Rhetoric III.13, which I quote in full:

> There are two parts of a speech; for it is necessary both to state the object which it is about and to demonstrate this. That's why one cannot fail to demonstrate what's stated nor to demonstrate what hasn't been stated; for {someone} demonstrating demonstrates something, and {someone} introducing introduces for the sake of demonstrating. One of these is a proposal, the other a persuasion, just as if someone divided {it such} that the one is the problem and the other the demonstration.
>
> Currently {people} divide {it} ludicrously: surely a narration is only for a judicial speech; and how could there be a narration such as they say there is in an exhibitionistic or demagogic speech, or {replies} to the adversary or an epilogue in a demonstrative speech? A prelude, a comparative reply, and a recapitulation occur in demagogic speeches when there is an opposing speech; for often there is accusation and defense, but not as deliberation (rather it's an epilogue). Yet there isn't {an epilogue} for every judicial speech—e.g., if the speech is short or the

> object is memorable; for it comes about from the subtraction of length. Therefore the necessary parts are proposal and persuasion. These then are the proper {parts}, but at most {there is} an prelude, proposal, persuasion, and epilogue; for {replies} to the adversary are amongst the persuasions, and a comparative-reply is an expansion of this, so it is some part of the persuasions—for the {part} that produces this demonstrates something, whereas the prelude doesn't, nor the epilogue, rather it reminds. So, if anyone continues dividing like this, as those around Theodorus do, there will be another narration and supra-narration and pre-narration and refutation and supra-refutation. But one should posit a name {only when} speaking of some form and by a difference (δεῖ δὲ εἶδός τι λέγοντα καὶ διαφορᾷ ὄνομα τίθεσθαι); or else it becomes vain and ludicrous, as Licymnius did in *The Art*, naming a "gusting" and a "wandering" and "offshoots". (1414a30-b15)

This chapter is a promising source of evidence. In the second paragraph, we see Aristotle disagreeing with some of his contemporaries over how a speech is to be divided up into parts. What is at issue is clearly not whether some portion of a given speech exists—e.g., the part that Licymnius would call a "gusting"—but whether that portion of the speech constitutes a *part* which corresponds to a parts found in other speeches and ought to be named. He rejects several concepts for speech-parts as illegitimate, criticizes others as in some way defective or misused, and even in the process appeals to a principle about when names should and should not be made up.

It is not obvious at first sight, however, what Aristotle's complaint is against Theodorus' cronies and the other contemporary theorists of rhetoric. He is quite exercised that they include "narration", "{replies} to the adversary", "recapitulation" and "comparative-reply" among the parts of a speech in addition to (or instead of) the two parts that he argues all speeches must have and the two additional parts that are present in certain speeches. Though he takes their error to be somehow related to a violation of a principle about when names should be made up, he doesn't actually reject any of their concepts. It is clear even from the present chapter that he does think there are such things as narrations and comparative-replies, and even that they are in some sense parts of some speeches, and this is confirmed by III.16-18, where these parts come in for sustained discussion. Aristotle does give several examples of names that should not have been made up, but they are all either his own inventions ("supra-narration") or due to Licymnius, who he seems to regard as more obviously foolish than Theodorus and company. Yet these examples are supposed to somehow serve as a *reductio ad absurdum* of the way that the people around Theodorus divide speeches.

We can understand Aristotle's criticism if we begin by looking at how he justifies his own division of speech parts. The two parts he attributes to all speeches are the proposal and the persuasion. The latter conducts the main business of a speech, the function of which is to persuade. But in order to persuade you must first tell the audience what point you are trying to persuade them of; since doing this is distinct from persuading, it will require a distinct part present in every speech. The additional parts that he attributes to some speeches, the prelude and the epilogue, serve similarly distinct functions that are necessary only in some circumstances—we can see from the present passage that the epilogue is necessary only when the arguments made are difficult to remember and so need to be synopsized.[81] He later allows that some speeches do have narrations, replies to adversaries, and comparative replies, but he does not treat these as parts of the speech in their own right, but rather as subdivisions of the persuasive part. What Aristotle objects to, then, is, first, the false attribution of certain parts to certain speeches (e.g. of narrations to exhibitionistic speeches), and, second, the treatment of sub-sections as on a par with the proposal and persuasion (and with the prelude and epilogue, when these are present.).

To understand the relevance of the principle about making up names to these two problems, we have to consider what would have lead the people around Theodorus to make the two moves to which Aristotle objects. If they simply attributed (say) epilogues to all speeches, when they only occur in some, they might have done this through hasty generalization, but they seem to have gone further than this and attributed epilogues specifically to certain sorts of speeches that do not have them—e.g., to demonstrative speeches. This means that they must have been misidentifying portions of demonstrative speeches as epilogues. What would cause them to both make this sort of error and to fail to recognize subordination relations between speech parts? Both errors would arise from a failure to focus on function. Likely, the people around Theodorus simply partitioned different speeches into sections, named them, and tried to find an isomorphism between these named parts. Thus one would call the end of every speech an "epilogue" regardless of whether it summarizes the preceding material, and one wouldn't realize that the several, separately named, argumentative portions of the speech cohere into a unit.

If this is indeed the manner in which they divided the speech into parts, then they could have kept introducing new divisions indefinitely (until, in any given speech, they got to the level

[81] These two parts and their functions are discussed in III.14 and 19, respectively.

of sentences) and would have no reason to stop at any given point and no means by which to subordinate some of their sections to others. Thus, their method would lead to such terms as "pre-narration" and "supra-narration", or "gusting" and "wandering". These terms are wholly illegitimate, because they do not denote functional parts of the speech. Though the people around Theodorus, did not make up such names; they turned legitimate concepts (or, at least, legitimate names) into the equivalent of "supra-narration" by using them in disregard of the functional facts that give rise to them.

The principle regarding names that Aristotle cites here is that "one should posit a name {only when} speaking of some form and by a difference". Presumably the point is that mere portions of speeches are not forms, because they are not differentiated in the right way. But this principle in itself does not tell us what is required for there to be a difference. The moral that we can draw from this passage as a whole, given what we have seen earlier, is that it is the presence of a causal role. In speeches specifically, it is because a portion is a functional component, that it constitutes a form—a knowable type that can be recognized in different speeches and learned about. And it is only when this is the case that it is proper to introduce a name. Presumably it is because a speech is an artifact, that its parts are distinguished and defined by their functions, and the same would apply to a living thing. We can generalize this point to apply also to non-teleological items (e.g., presumably, thunder) by replacing the talk of functions with talk of causal roles. More generally, then, the problem with Theodorus and company is that they do not take a causal perspective when they form and use their concepts.

Now, in the present passage, it is likely that Aristotle thinks he has a relatively deep understanding of the causal factors at work (especially since the passage occurs near the end of a treatise on rhetoric). The people around Theodorus, by contrast, probably know what an epilogue is only incidentally. And the derisive tone Aristotle takes towards them, shows that he regards their condition as a sort of blameworthy aberration, rather than as a normal and healthy stage in the development of knowledge. Presumably, there will be a state between theirs and Aristotle's own in which one has enough knowledge to intelligently coin and use terms for parts of speeches, without knowing fully what these parts are—a state in which one has "something of the essence". Surely there must be, or else the words that Theodorus' cohort abused couldn't have gained currency. (It's very unlikely that Aristotle thought that anyone prior to him had a kind of causally deep understanding of rhetoric). In any event, we know that, in general,

Aristotle thinks that someone an grasp "something of the *what it is*" without knowing what it is in a causally deep sense. The present passage confirms our earlier conclusion that such a person must nonetheless have some sort of causal knowledge in virtue of which his concepts represent non-arbitrary groupings and non-incidental unities. Let us turn, then, to the question of what sort of causal γνῶσις is involved in the initial formation of concepts.

4.3.4 Ordinary concept-formation and imprecise causal γνῶσις

If we are correct that this is some sort of causal or proto-causal knowledge involved in forming a concept as such, then some such knowledge will be involved not only in extending one's filing system in the course of practicing the method described in *Posterior Analytics* II.14, but also in the sort of ordinary and unmethodical concept-formation in which children and non-specialists engage and by which we acquire most of our vocabulary. I return once again to *Parts of Animals* I.4, for an example of such concept-formation:

> Perhaps, then, it is right, on the one hand, to speak in common in accordance with kinds wherever {one} is spoken of properly (καλῶς), men having defined it well, and has a single common nature and, in it, forms that are not very different ({e.g., the kinds} bird and fish, and {likewise} if there is any other that, though unnamed, comprises (περιέχει) the forms in it like a kind), and, on the other hand, wherever there is not such {a nature}, {to speak} particularly (e.g., about man, and {likewise} if there is any other such {form}).
>
> Roughly, kinds have been defined by the figures of the parts and of the whole body, should they bear a likeness—e.g., the kind of the birds has affections related in this way and the kind of the fish and the softies and the shellfish. For the parts of these differ not by analogous likeness, as in {the case of} man and fish featuring bone relative to thistle, {but} by "the more" in bodily affections—e.g. in largeness, smallness, softness, hardness, smoothness, roughness, and such things—on the whole, in the more and the less. (644b1-15)

I take it that "men" here refers to people at large, rather than specific wise men who may have offered definitions of bird and fish. Ordinary people define these kinds by the shapes of their parts and of their bodies as wholes, and in so doing they define them well, capturing a single common nature. We are not told much about how this can be, but it's not difficult to imagine. The shape of each of an animal's parts is complex and so can vary along many different continua, and the animal's shape as a whole is more complex. But its unity is easy to apprehend

when we observe the animal in motion. In observing the animal move we acquire a great deal of causal knowledge that enables us to appreciate the animal's oneness. Aristotle does clearly think such causal knowledge and the concepts in virtue of which we have it can be easily acquired from perception. He tells us as much in *Posterior Analytics* I.31:

> …even if, while on the moon, we saw the earth intercepting, we would not o-know the cause of the eclipse. Nevertheless, {since} the universal comes about from observing this many times, if we hunted {for it} we would have a demonstration; for from many particulars the universal is revealed. So it's evident that it's impossible to e-know any of the demonstrables by perceiving, unless someone means by "perceiving this" having e-knowledge through demonstration. Now certainly some among the problems are reduced to perception's absence. For, {with} some, if we saw we would not seek, not because we o-know by seeing, but rather because we have the universal from seeing. E.g.: if we saw the glass to be perforated and the light going through, it would also be clear why {it goes through}, even if, one sees separately in each {case} and thinks simultaneously that it's so in every {case} (87b39-a17)[82]

Here Aristotle denies that that one can know causes in perception alone, because real causal knowledge requires the universality necessary to grasp the necessity in the form of a deduction. But he does think that perception plays the dominant role in the acquisition of some causal knowledge, and he illustrates this with two counter-factual examples in which we perceive the workings of a mechanism that, in reality, is hidden from us. In each case, all that is required to grasp the causes at work is to universalize—that is, to represent generally in thought what we perceive happening in several cases. To do so we will have to omit from the thought some

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[82] There are some textual difficulties in 88a14-16. I am reading them which Barnes as follows:

> οἷον εἰ τὴν ὕαλον τετρυπη μένην ἑωρῶμεν καὶ τὸ φῶς διιόν, δῆλον ἂν ἦν καὶ διὰ τί καί ει τὸ ὁρᾶν μὲν χωρὶς ἐφ' ἑκάστης, νοῆσαι δ' ἅμα ὅτι ἐπὶ πασῶν οὕτως.

Ross reads: "…καίει, τῷ ὁρᾶν…", which translates

> …would be clear why it kindles, by seeing {it} separately in each {case} and thinks simultaneously that it's so in every {case}.

The manuscripts are split on καίει vs. καί ει. Ross' reading seems to have more support, but since the difference between the two is one of spacing and accent, both of which post date Aristotle, the manuscripts readings are not authoritative. Ross' "τῷ" is just an emendation due to Bekker. If "καίει" is right, then Ross suggests that it is a reference to a view of Gorgias' recounted in the following passage from Theophrastus' *De Inge* 73:

> ὅτι δ' ἀπὸ μὲν τοῦ ἡλίον φῶς ἅπτουσι τῇ ἀνακλάσει ἀπὸ τῶν λείων, [τί τὸ ἄπορον; συμμιγνύουσι δὲ τὸ ὑπέκκαυμα] ἀπὸ δὲ τοῦ πυρὸς οὐχ ἅπτουσιν, αἴτιον δ' ἥ τε λεπτομέρεια, καὶ ὅτι συνεχὲς γίνεται μᾶλλον ἀνακλώμενον, τὸ δὲ ἀδυνατεῖ διὰ τὴν ἀνομοιότητα. ὥστε τὸ μὲν τῷ ἀθροισμῷ καὶ τῇ λεπτότητι διαδυόμενον εἰς τὸ ἔκκαυμα δύναται καίειν, τὸ δ' οὐδ' ἕτερον ἔχον οὐ δύναται. ἐξάπτεται δὲ ἀπό τε τῆς ὑέλου καὶ ἀπὸ τοῦ χαλκοῦ καὶ τοῦ ἀργύρου τρόπον τινὰ ἐργασθέντων, οὐχ, ὥσπερ Γοργίας φησὶ καὶ ἄλλοι δέ τινες οἴονται, διὰ τὸ ἀπιέναι τὸ πῦρ διὰ τῶν πόρων.

The two readings have Aristotle giving significantly different examples, but both illustrate the same point. Barnes reading yields a more natural example, which is why I prefer it.

attributes and determinations of attributes that are present in the perceived particular (as we discussed above in §3.3.2 in connection with *On Memory* 1), otherwise we will not have the unity necessary for a thought. But it is not difficult to see how in these cases we would be able to do this.

Consider the case in which we see light pass through glass by passing through pores in it. For the sake of the example (which is not true to Aristotle's own view of light or transparency) light must be imagined to be either something like a fluid or else made of particles smaller than the pores in the glass.[83] In either case, surely the relevance of this fact about the light to its behaving as it does would be part of the content of the perception. What we would perceive in each case and need to conceive universally is a certain sort of small body (or fluid) passing through a hole, and we would grasp this action as something that has this sort of body as its subject. These facts are causal and, in the example, perceptually accessible, requiring only to be universalized to count as causal knowledge.

We cannot in fact see the micro-structure in virtue of which light passes through glass (and indeed Aristotle does not himself think there is any such microstructure) but there are other similar mechanistic facts that we can perceive; for example, we can see birds and other winged animals flying by means of their wings—that is, we can see the involvement of wings in flying in just the way that we see the involvement of smallness in passing through a pore. Flying is something a winged animal does with its wings.[84] More generally, perception gives us bodies with certain figures taking certain motions (recall that the basic sense of touch has as its proper object the basic differences of body as such and that figure and motion are among the common sensibles); one cannot perceive a motion without perceiving it as the motion of a body with some figure, and many motions are figure-specific: winged things fly, round things roll, etc. Consequently there will be enough causal material available at the very beginning of cognition to (unselfconsciously) form at least some concepts. And likely we also unselfconsciously form further concepts with the aid of these when we notice (through experience) that by dividing up the world in certain ways we arrive at terms that follow and are followed by our initial concepts in regular ways. Experience is, after all, an inarticulate grasp of which particulars follow from

[83] Aristotle rejects Pre-Socratic views of light as a body. See *De Anima* II.17, especially 418b13-25 cf. *De Sensu* 2-3.

[84] A fact that is made more obvious in Greek by the linguistic relation between the noun "πτίλον" ("wing") and the verb "πέτομαι" ("fly").

which, and, as it develops, it progressively approximates to a concept, so that, in the end, by making up or leaning a name one can pass from a (well developed) δύναμις for ἐμπειρία to a concept.

The process descried in *Posterior Analytics* II.14, amounts to a deliberate, conceptually guided interrogation of experience with the aim of conceptually identifying all the experienced connections in a form that can be enable us to find the demonstrations that will convert this mere γνῶσις into ἐπιστήμη. In *Prior Analytics* I.30 he describes this same process as follows:

> {We should} select each of the existents—e.g., about good and e-knowledge. For most {things} are distinctive to each. That's why, it is for experiences to impart (παραδοῦναι) the principles about each; I mean (e.g.) {it's for} astronomical experience {to impart the principles of} astronomical e-knowledge (for, the appearances have been sufficiently taken, in this way the astronomical demonstrations were found); and it holds likewise too of any other art of e-knowledge whatsoever; so that, if the things belonging to each have been grasped, the demonstrations are already ours to bring readily to light. For, if none of the attributes that truly belong to the objects have been omitted from our study (ἱστορία), then, concerning everything, we can find and demonstrate those of which there is a demonstration, and, for those of which there is not by nature a demonstration, we can make this evident. (46a10-27)

What is described here is a self-conscious, methodical move from experience in a domain to a conceptual understanding of it—to an ἐπιστήμη. But some form of this process can take place non-methodically, and it must have already done so, resulting in the formation of some concepts, and in some causal knowledge, before we can be in a position to undertake any such inquiry.[85] Just as cities are first formed by nature and then perfected through the τέχνη of

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[85] An interesting question is whether Aristotle thinks that our initial, pre-methodical conceptualizations may have to be revised in the course of an inquiry. Here I think it is important to distinguish two sorts of cases. Recall that, in *Parts of Animals* I.4, Aristotle advises us to "speak in common according to kinds whenever {one} is spoken of properly (λέγεται καλῶς), men having defined it well" (644b1-3). In some cases, the concepts in the vernacular will not define kinds well and speak of them properly. The concepts will be mis-formed—the results of some sort of error—and will need to be replaced. We get an example of this in *Poetics* 1 1447b13-16 when Aristotle complains that

> people, by conjoining "τὸ ποιεῖν" to the meter, name (ὀνομάζειν) "ἐλεγειοποιός" or "ἐποποιός", denominating them not insofar as they produce with respect to imitation, but rather commonly with respect to the meter.

That at least the second of these illicit names had currency is confirmed by its appearance in Herodotus (II.120). In this sort of case, the names ought to be abandoned and new concepts formed, but only because there where was something irrational about the grouping in the first place. A second sort of case, would be a classification which was entirely appropriate at a certain stage of an inquiry but which needs to be altered or replaced at a later stage based on causally deeper knowledge. (For examples of such cases in actual science, see Lennox 2006.) I know of no passages in which Aristotle considers this possibility, and I doubt it would have occurred to him. The naturalness with which

statesmanship, so causal and universal knowledge is first formed naturally and then perfected (made precise) though τὰ ἀναλυτίκα which includes both knowledge of the structure of ἐπιστήμη and methods for bringing it about.[86] Central to these methods is the process of conceptually "filing" the contents of one's experience, which is advocated in *Posterior Analytics* II.14 and *Prior Analytics* I.27-31. This is the process that Aristotle describes in the above passage as ἱστορία, and which he practices in (amongst other places) *The History of Animals*.[87] But the methodology Aristotle preaches and practices is a subject for another occasion. I have aimed to

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such cases occur to us reflects a perspective on the nature and pace of scientific progress that Aristotle was too early to have had.

[86] Cf. *Rhetoric* I.1 1354a1-11's contrast between the respect in which everyone participates in rhetoric (and dialectic) and the respect in which it is an art:

> Rhetoric is a counterpart of dialectic; for both are about such sorts of thing as are common in some manner for everyone to g-know and not a delimited e-knowledge; and that's why everyone in some manner participates in both; for all to some extent endeavor to examine and to maintain an account and to defend and to accuse. Of the many, some do this haphazardly, the others because of habituation from a state; since it's possible both ways, it's clear that {it} would also be {possible} to produce {it} by a method; for it's possible to study the cause though which the former succeed because of habituation and the latter by chance, and already everyone would agree such is a function of art.

[87] For argument that the method described in *Prior Analytics* I.26-31 and *Posterior Analytics* I.14 is the central method of the *History of Animals* and that Aristotle refers to it at ἱστορία, see Lennox 2001c (cf. 1987a). I broadly agree with Lennox's account of how ἱστορία functions, including his view (contra Charles [1990; see Lennox 1990]) that it precedes the search for causes. However, I think that it nonetheless presupposes some (very imprecise) causal knowledge of the sort that will be gained naturally in the course of forming such concepts as "animal", "bird", etc. Without knowing that the objects of these concepts play some causal role (even if one doesn't know the details of it), one wouldn't be able to form unitary thoughts of them at all, and so would not be able to set out on a systematic ἱστορία of them. Given a stock of preexistent concepts, one could form new concepts in the course of a ἱστορία without yet grasping new causal relationships simply by seeing that there is an inferential role to be played—i.e., that certain features "follow" or are followed by the already conceptualized items. In seeing more causal knowledge in the background than Lennox does, I am agreeing with Gotthelf (1994). I agree with him also in doubting that the establishment of kinds is an aim of the *History of Animals*. Though Lennox (following Charles) sometimes writes as though this were a central aim of the treatise (e.g. 1990 170), the essence of his view is that ἱστορία is the sort of filing operation discussed above at which one frames connections between subjects and predicates at the right level of generality for demonstration. Though it may sometimes be necessary to introduce new concepts to do this, it will not always be necessary (for we may have enough concepts) and, in any event, it is not as such a goal of the process. Where such new concepts for kinds are introduced, though we can say in some sense that the kinds are "established", I do not think with Charles (1990, 2000) that this is the same thing as establishing for the kind *that it is*, in the sense discussed in *Posterior Analytics* II.1-10. (Lennox [1990 170] adopts Charles' language about establishing "the existence of kinds" and recasts some of his earlier [2001c] points in terms of it.) In all the cases treated in the *Analytics*, establishing that something is means establishing not that things fall into a kind but that something exists as opposed to not existing (e.g. that there is a noise in the clouds as opposed to their not being, not that the many different noises heard in the clouds constitute a kind). It is not clear to me that a kind could exist in the relevant sense, and in any event, in all the examples Aristotle considers, one could make the existence claim of a particular under the universal as easily as of the universal itself (and, as we saw in §4.2.2 Aristotle sometimes does make these claims for particulars). When Aristotle does talk about whether or not forms constitute a kind, as in *Parts of Animals* I.4, his focus is on the relations between the items, rather than on whether anything exists.

say just enough about it here to show how we as cognitive agents play some role in and have some responsibility for the formation of our concepts.

4.4 ARISTOTLE AND THE PROBLEM: CONCLUSIONS

To bring this chapter and this dissertation to a close, let's return to the Problem of Concepts with which we began and review some of what we have seen Aristotle's position on it to be. In Chapter 1, I posed the Problem as the question *how we are able to have unitary cognition of a plurality of differing objects.* The answer standardly attributed to Aristotle is that there is a mind-independent universal object that these cognitions are, in the first instance, of and which stands in some relation to the differing objects in virtue of which the cognition applies to them. We have seen that, on his view, there is no mind-independent universal object for a concept; rather the concept is a determinable thought-in-potentiality that can be actualized into a thought of any of a number of related objects and so can be said in a way to have as its object an indeterminate potentiality to be any of the objects, though (in most cases at least) no such potentiality exists independent of the mind.[88]

What does exist independent of the mind are the individual objects and certain relations: chiefly, the relation of difference "in the more and the less" between the objects, and causal relations between objects and between the parts or attributes of a given object. Both sorts of relation makes it possible for us to decompose the objects in thought—to intensionally divide them—so as to form the concepts (or indeterminate thoughts). These are then symbolized by words (or, failing that, name-like λόγοι), which enable them to serve as terms in propositions. The propositions recombine the thoughts to represent objects as composites, some of which can be seen to follow deductively from one another. Through these deductions we apprehend the necessity of causal connections, and grasp the objects as having to be the way they are.

This causal-conceptual perspective on the world develops gradually from perception, which is a particularistic and imprecise (or causally shallow) knowledge of the objects, and it culminates in νοῦς and ἐπιστήμη which are universal and maximally precise. The early stages of

[88] In those cases where it does, the intelligible matter will happen to correspond to the perceptible matter. This might be the case with ice, if water is its kind.

this process occur naturally, but the later ones require methodological knowledge based on a philosophical understanding of universality—on a solution to the problem of concepts. (For example, the process described in *Posterior Analytics* II.14 depends on division, and as of *Metaphysics* H.6, proper division depends on right understanding of relation of potentiality to actuality that holds between a kind and its forms.)

The structure of knowledge that is build up in this way depends for its connection to the world in one way on the knowledge of the deepest causal relations, which is reached only at the end but is present in another way (in potentiality) throughout the process, and this presence is sufficient to make our thought meaningful (if imprecise) even at the earlier states. In another way, the whole structure depends on the most imprecise knowledge—perception—with which it begins, because everything that comes later is reached by processing this knowledge so as to bring out material that is present in it in potentiality.

Several of these points represent the tips of icebergs that I have only began to chart in the text above. But, if I am correct both that Aristotle's view of universality is quite different from what it is usually thought to be and that it is intimately connected to his views of knowledge and explanation more generally, then it is inevitable that my positive account should have this sometimes preliminary character; for much more about Aristotle's philosophy needs to be rethought than can be in several years and several hundred pages.

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