

Aristotle on Definition

MARGUERITE DESLAURIERS

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Aristotle on Definition

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By

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In memoriam
Jean-Jacques Deslauriers
Ste. Marguerite, 1914 – Montréal, 1998

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October, 2006

INTRODUCTION

Aristotle's theory of definition—his account of what good definitions are, and how we can produce them—holds the key to his answers to two fundamental questions: (1) What is an essence? (2) What guarantees the certainty of the principles of demonstrative science? The three extended discussions of definition, in Book 6 of the *Topics*, Book 2 of the *Posterior Analytics*, and Books 7 and 8 of the *Metaphysics*, are of individual interest, but the philosophical significance of the theory of definition emerges only when we consider each of these discussions in light of the others. The different discussions might seem at first glance to function independently. In every case, Aristotle says that a definition, properly speaking, is a formula in words that tells us what the object of definition is. But aside from this shared understanding of what a definition is, the discussions appear to have quite distinct aims. In the *Topics* Aristotle's concern is to set out guidelines for the construction of definitions and the testing of definitions in the context of dialectical discussions. In the *Posterior Analytics* his concern is to describe the role of definition in demonstrative syllogism. In the *Metaphysics*, his concern is to make clear certain features of essence through a discussion of the linguistic formulae appropriate for the expression of essences.

There are important and as yet unexplored connections among these discussions.¹ When we reveal these connections we discover a link between Aristotle's logic and his *Metaphysics* that illuminates both of the questions I mentioned above—how Aristotle hopes to establish the certainty of definitions as first premises in demonstration, and why he believes that definition is the best way for us to come to understand essence. I want, then, to explore the significance of the ways in which the discussion in the *Metaphysics* depends on the more

¹ David Charles has drawn useful connections among these discussions. His work is largely devoted to the definitions that I call syllogistic. See *Aristotle on Meaning and Essence* (Oxford: Clarendon, 2000), especially Chapters 8–11. See also Deborah K.W. Modrak, *Aristotle's Theory of Language and Meaning* (Cambridge: Cambridge University Press, 2001), especially Chapter 6.

technical discussions in the *Topics* and the *Analytics*; but also to consider the ways in which the role of definition in the *Metaphysics* informs the discussions in the logical works.

The connection that Aristotle's theory of definition provides between his logic and his metaphysics helps to resolve the two questions I mentioned above. That is, when we understand the theory of definition we understand both what Aristotle takes an essence to be, and why he believes that an accurate formula of an essence can provide the necessary certainty for the first principles of demonstration. Aristotle thinks that definitions (in a strict sense that will have to be elaborated) tell us what something is, and not just what a word means. This reveals that Aristotle believes in a certain relation between language, properly formulated, and the being described by that language; a well-constructed definition gives us knowledge of what it defines, where Aristotle takes what it defines to be not a word but what that word refers to. He believes that we have no trouble picking out the members of natural kinds, and that that ability to identify species allows us, using the method of division, to determine ultimately the genus and the differentiae that define that species, and through the definition to gain knowledge of the essence of the species. This implication of the account of definition is confirmed by the discussion of definition in the *Metaphysics*, where Aristotle proceeds as though anything we learn about definition is telling us something about essence.

The first aim of this book is to argue that Aristotle retains certain commitments in his various discussions of definition, despite the different concerns that motivate each of these discussions. In making this argument I set out what amounts to Aristotle's theory of definition. In particular, I argue that Aristotle is most fundamentally interested in a particular type of definition, immediate definition, which states the formal cause of a particular sort of item—one that is simple in a way that I try to make clear. This is the sort of definition that Aristotle discusses in the *Metaphysics*, and that he presumes will serve as the foundation of demonstrative science; and that is why it is of primary interest. Immediate definition has to be understood in contrast with other kinds of definition. First of all it is contrasted with definitions that do not state the complete cause of what they define. These are accounts of what something is that mention some cause of that thing (and so may be sufficient to allow us to pick out individuals that satisfy the definition), but they are incomplete and hence insufficient for understanding what it is to be that kind of thing. Second, immediate definition is contrasted

with definitions, which, while they do state a complete cause, have as their objects items which are not simple. We cannot formulate immediate definitions of these non-simple objects because they do not have essences (for reasons we learn in the *Metaphysics*).

Immediate definition is of interest in the *Analytcs* and the *Topics* as one sort of basic truth for demonstrative syllogism, and it is of interest in the *Metaphysics* as the correct, and only, way to represent essence. Aristotle has a project common to the different discussions and a particular interest in definition that one is likely to miss if one were to focus only on one discussion: he believes that an understanding of the structure of definition and the appropriate method for establishing definitions will reveal the structure of essences. The technical requirements of the logic are intended not only to ensure that definitions as linguistic formulae are established correctly, but that those definitions capture the structure of essence. In this way the discussions in the logical works connect with the discussion in the *Metaphysics*.

I argue that the method of dialectic in the *Topics* and the method of demonstrative syllogism in the *Posterior Analytics* are connected, in that the requirements for the establishment of definition set out in the *Topics* are intended to guarantee that definitions will be basic truths of the right sort for demonstration. My approach to the three discussions of definition in Aristotle's work assumes that there is a connection between the discussion of definition in the *Metaphysics* with its implications for essence, and the discussion of definition in the logic as a technical matter, and seeks to elaborate that connection. I assume that Aristotle's claim in the *Posterior Analytics* that definitions established by division are adequately certain to serve as the basic truths of demonstration is compatible with the discussion of division as a method of dialectic in the *Topics*, and try to show how a method of dialectic can yield results with sufficient certainty to serve as the foundation of demonstrative science.

A second aim of the book is to clarify certain questions that emerge from the different discussions of definition, and from any comparison of the discussions. I am interested in questions pertaining to definitions arrived at through division, and especially to immediate definitions, namely: Which problems are Aristotle's modifications to the procedure of division as practiced by Plato supposed to address, and are they successful? Why does Aristotle distinguish different kinds of definition? If definitions must be causal, what sort of cause must they mention? Why must definitions conform to the structure of genus-plus-differentia(e)? What is the object of definition—i.e. what is a simple item and what is

the source of its unity? Can dialectical arguments offer results useful to demonstrative science?

Chapter One considers Aristotle's method for arriving at definitions. Aristotle follows his predecessors in accepting division as the procedure for formulating definitions. His concern that such definitions should be natural—that is, non-arbitrary and complete—was shared by Plato, and his criticisms of Plato reflect no disagreement about that basic value, but rather a worry about how best to achieve natural divisions. Aristotle's exploration of that question reveals a difference in his understanding of the object of definition, because the right way of arriving at natural definitions will depend on the conception of the object of definition. I argue that Aristotle diverges from Plato in conceiving of definable form as unified through the introduction of matter, where both the concern with unity and the introduction of matter are new. Aristotle then advances certain technical rules for ensuring natural divisions, but these technical rules bring with them two philosophical problems.

The first is the tension between two of Aristotle's modifications of Platonic method: that the unity of the parts of definition which is supposed to be guaranteed by the requirement of successive division is threatened by the requirement that the initial divisions in any process of division should be non-dichotomous. The second is Aristotle's concern that divisions should lead to definitions with certainty adequate to allow them to serve as the first principles of demonstrative science, while allowing that division is not a method of proof. Two questions then emerge: (1) Given that successive differentiation is meant to ensure unity, and that the requirement of non-dichotomous divisions seems to threaten that very unity, can successive differentiation and the requirement of non-dichotomous division be reconciled? And (2) how can the certainty of definitions formulated through division be guaranteed? I begin with the second of these questions, which I try to address by discussing the causal nature of certain kinds of definition in Chapters Two and Three, and return to it in Chapter Five in the discussion of definitions as originally dialectical. I address the first question in Chapters Four and Five, where the importance of the question emerges in relation to Aristotle's discussion of the unity of definitions in the *Metaphysics*.

Since the correctness of definitions will be the guarantor of the certainty of the conclusions of demonstrative science, the rules for natural division proposed by Aristotle are intended to support his claims for the adequacy of the first principles that are definitions. Given the conditions on first principles established by Aristotle in the *Posterior Analytics*,

it is evident that not every definition formulated by division will function as a first principle. The question that I address in Chapters Two and Three is: What distinguishes the definitions that can function as first principles from other kinds of definition? I argue that Aristotle's answer is that it is the object of definition, and in particular its relation to its formal and efficient cause, that distinguishes the kind of definition that can function as a first principle from the kinds that cannot. To identify the features of immediate definitions that allow them to function as first principles is to begin to understand Aristotle's solution to the problem of the certainty of definitions and their adequacy to serve as first principles.

In Chapter Two I consider the types of definition identified by Aristotle, and the differences among them. In the *Posterior Analytics* Aristotle tells us what is characteristic of a well-formed and complete definition, and introduces the requirement that a definition strictly speaking should state the cause (*αἴτιον*, *aition*) of the object defined. The list of definitions in *Posterior Analytics* 2.10 includes two basic kinds: those that indicate what something is through a middle term (i.e. through something other than that which is defined)—which I call “syllogistic definitions”, and those that indicate what something is through a phrase which is not and cannot be formulated in terms of a syllogism—which I call “immediate definitions”. Immediate definitions and syllogistic definitions are similar in that both involve complete *aitia* of some sort. This distinguishes them from the two types of definition that are preliminary to demonstrative science. At the same time, immediate definitions differ from syllogistic definitions because of the nature of the relation between the definition and the *aition* it involves. In syllogistic definitions, the *aition* is something other than that of which it is the *aition*, and this other item is named by the middle term of the syllogism. In immediate definitions, which must be expressed as true, indemonstrable sentences of the form, “X is Y”, the *aition* is the predicate; it does not name something other than the subject. If immediate definitions were not sentences of this sort they would not be immediate in the appropriate sense. (We will have to see how this immediacy is compatible with the requirement that they include *aition*.) While syllogistic definitions can be expressed in sentences, these sentences will not be immediate; and immediate definitions cannot be expressed in syllogisms.

The difference between immediate and syllogistic definitions is expressed both in formal terms and in terms of content. That is, immediate definition cannot be displayed in demonstrations, while syllogistic

definitions can be so displayed—to do so would be to posit a middle term between two terms which, by hypothesis, are connected immediately. This is the formal difference. But the difference in the relation between the object of definition and the cause of that object in the case of immediate definitions and syllogistic definitions is not a formal difference (although it is expressed by the formal difference), but rather a difference in the object itself.

In Chapter Three I explore the relation between the formal difference and the difference in content in order to clarify the structure of immediate definition and the nature of the object of immediate definition. I aim to show that Aristotle believes immediate definition to be the primary form of definition precisely because it is immediate, and that immediacy is a function of the relation between the parts of the definition, which is in turn a function of the structure of the object of immediate definition. The peculiar unity of that object gives immediate definitions the necessity that allows them to act as first principles for demonstration, and also makes it (the object of immediate definition) of interest to Aristotle in his discussion of substance as essence in the *Metaphysics*.

I argue that ultimately the difference between syllogistic and immediate definitions is the difference between definitions that include only formal *aitia* (these are immediate definitions) and definitions that include efficient *aitia* external to the object as well as formal *aitia* (these are syllogistic definitions). It is because both types of definition state what or why the subject is (τί ἐστὶ or διότι—where these amount to the same question, although their objects are different) that they must both involve *aitia*. But immediate definitions are unlike syllogistic definitions in that they can be among the first principles of a science because of the immediacy of the relation between their objects and the causes of those objects. The knowledge of the first principles that are immediate definitions shares with the knowledge of demonstrable conclusions a grasp of the cause and of the necessity of that cause—the difference is in the nature of the necessity. So the knowledge of first principles provides a basis for the certain knowledge of demonstrable conclusions.

One claim to emerge from the argument of Chapters Two and Three is that definitions of simple items (items which are ἀπλῶς) are among the first principles of demonstrative science, because they have the requisite certainty. That certainty depends on the unity of the parts of essence in a simple item. In the *Metaphysics* Aristotle explores further that unity. The aim of Chapter Four is to clarify the nature of the

objects of immediate definition as simple objects. This should help us to understand why Aristotle is most interested in immediate definition among the kinds of definition he has distinguished, and why he takes the objects of immediate definition to have metaphysical priority over other kinds of object.

In the first section of Chapter Four I examine the reasons Aristotle gives us for excluding various kinds of complex objects as possible objects of definition proper in *Metaphysics* 7.4–5. I aim to show that the objects of syllogistic definition are among the objects he excludes. The definitions Aristotle has in mind in the *Metaphysics* must then be immediate definitions, since they are certainly definitions that state a complete cause, and if we eliminate syllogistic definitions the only remaining type of definition that states a complete cause is immediate definition. In the second section of the chapter I try to clarify the precise sense in which the objects of immediate definition are simple; for while they cannot be complex in certain specified ways, they do have parts—more than that, their simplicity depends on them having parts. The discussions of *Metaphysics* 7.12 and 8.6, which both raise and allegedly resolve the issue of the unity of definition and essence, make clear that that unity is provided by a certain relationship between the parts. It is not clear, however, from the discussions of 7.12 and 8.6 just why the parts and the relationship between them can provide the necessary unity and hence simplicity. In the third section of the chapter I consider the reasons Aristotle has for including matter somehow in the essence, and hence in the definition, of simple items. The problem is how to include matter in such a way that it guarantees unity, rather than threatening unity, in the essence and the definition. Finally, in the fourth section, I consider the status of definitions and of their objects as universal despite the tension between the claim that the object of immediate definition is the form of simple objects, and the evidence that form is individual.

I argue that there is continuity between the discussion of definition in the *Posterior Analytics* and the discussion of the same subject in the *Metaphysics*. Aristotle does not, in the *Metaphysics*, reject the conclusions of the *Posterior Analytics*, although he does make more precise certain of those conclusions. In particular, I claim that the discussion of definition in the *Metaphysics* is restricted to immediate definition, which Aristotle takes to be definition strictly speaking.

The problem in the *Metaphysics* is how to construct immediate definitions adequate to the essences of items which are necessarily material

without either including what is unintelligible in such definitions, or attributing false unity (the unity of the items Aristotle calls ‘compound’ and ‘coupled’ at 7.4–5) to that which is defined. To resolve the problem we need to recognize that the genus in a definition represents the matter of the species as potentiality and as universal. The genus therefore does not suffer from the unintelligibility of individual matter, an unintelligibility due precisely to its individuality. The potentiality of the genus is necessary to ensure the unity of the definition, because Aristotle understands that unity on the model of the unity of the composite substance, where matter (as potential) is actualized by form. But the potentiality of the genus is not sufficient to ensure the unity of the definition, because there are ways of actualizing a potentiality that do not guarantee unity; another way of saying this is that there are attributes that entail genera without those compounds of attribute and genus constituting unities (e.g. male animal). Not only, then, must the differentiae entail the genus, they must entail it *because* they belong as-such to the formula of the genus (and not to its matter). So differentiae and genus are not two but one: the unity of genus and differentiae is a unity of potential-x with actual-x. The parts of essence have a unity that resembles the unity of form/matter composites in that it is the unity of the actualization of a potentiality. But the unity of essences is stable because it does not depend on a potentiality that is particular (as is the matter of individuals). Moreover, the genus is one with a multiplicity of differentiae because those differentiae themselves form a unity; differentiae, unlike other attributes of a genus, divide the form rather than the matter of the genus, and the capacity to divide form itself constitutes the unity of the apparently multiple differentiae. Because, then, the essences of natural composite substances do have the requisite unity for definition, Aristotle is able to give content to the notion of a simple item in the *Analytics*, maintaining at the same time that these simple items are now restricted to the category of substance (a claim which we do not find in the *Posterior Analytics*).

This helps to answer the first question raised at the end of Chapter One, the question of the unity of definition and the compatibility of that unity with the requirement of non-dichotomous divisions which yield multiple differentiae. In showing how we can reconcile this requirement with the unity of definitions and of their objects, my intention is to make clear that the immediate definitions which can act as first principles of demonstrative science also give us knowledge of substance as essence. They are able to give us that knowledge for the same

reason that they are able to act as first principles: because the structure of genus plus differentiae ensures both their unity and their certainty. This, then, is the connection between the two questions we started with: when we understand that Aristotle hopes to maintain the certainty of the first principles of demonstrative science by asserting that a certain causal relation obtains between the parts of the essence that is the object of definition, and makes those parts into a unity, then we also understand something important about the ontology of essence and Aristotle's reasons for thinking that it is the object of definition in the strictest sense.

I hope then to have established in Chapters One through Four the certainty of definitions and the unity of the parts of definitions and of the parts of the object of definition. The questions that remain concern the claim that immediate definitions, properly formulated, will tell us what a substance as essence is. In Chapter Five I argue that the technical rules for division that we find in the *Topics* have serious philosophical purposes. In particular, we can use them to answer an important question about definition raised, but incompletely answered, in the *Posterior Analytics* and the *Metaphysics*: why does Aristotle believe that the genus/differentiae structure provided by division is the only structure which can make clear the essence? Or, why does a well-constructed definition allow us not only to distinguish and classify kinds, but to know kinds by knowing their essence, i.e. why do the parts of a well-constructed definition reflect the parts of the essence?

The claim that definitions must be stated in terms of genus and differentiae is connected to Aristotle's general view that what is more knowable to us must be understood by reference to what is more knowable in absolute terms. I make this point by examining the *topoi* concerned with whether a definition states the essence. These *topoi* pertain to three things: the genus, the differentiae, and whether the terms of a definition are prior to and more knowable than the definiendum. These three *topoi* are connected; the requirement that the terms of a definition should be prior and more knowable is linked to the requirement that the definition should be expressed as a genus and differentia(e), and the requirement that the elements of a definition should be prior reminds us of the claim in the *Metaphysics* that the priority of genus and differentiae to species is causal. The language of "higher" and "lower" that Aristotle uses makes clear that he presumes definitions will be produced by and tested with the method of division. Genus and differentiae are prior to and more knowable absolutely than the form and causal with

respect to the form; hence the adequacy of a definition to account for an essence is dependent on the genus/differentiae structure.

The *topoi* concerned with whether a definition states the essence also answer the question why the parts of a definition will reflect the parts of the essence, and so help to resolve the question first raised in the *Metaphysics* and the *Posterior Analytics*: why is the genus/differentiae structure of definition supposed to guarantee that definitions will be causal in the right way? Stating the formal cause of the definiendum is the only way of assuring that one has stated what it is to be an X. Since stating the formal cause just is a matter of stating the genus and differentiae because these are more intelligible and prior absolutely with respect to the object of definition, stating the genus and differentiae will ensure that the definition is well-constructed. The issue then is how to conduct divisions so that one arrives at the correct genus and differentiae. This is why Aristotle takes so seriously the task of setting constraints on division. It is not that the method of division tells us how to pick out the members of a species. Aristotle thinks we already know how to do that, and so do not need a method. Division allows us to see what the essence of a species that we already can identify is, and so gives us causal knowledge of that species.

I conclude with three points. First, a particular kind of definition is adequately certain to ground demonstrative syllogism, although such definitions are arrived at by a process of division which begins with dialectical propositions. The certainty of such definitions is a function of the causal relations they capture. Second, these definitions have unity, again because of the causal relations they capture and reflect. This unity explains how successive division and non-dichotomous division are compatible requirements: the set of differentiae that distinguish one species from another within a genus are themselves a kind of unity; otherwise they could not divide a genus. Third, the technical requirements of the method of division as set out in the *Posterior Analytics* and the *Topics* are meant to guarantee the appropriate causal relation which is in turn what guarantees that the definition will represent the essence.

The theory of definition we find in Aristotle is then one that privileges a certain kind of definition, immediate definition, over all other kinds, because of two functions that immediate definition only can satisfy: it can act as a first principle for demonstrative science, and it can reveal substance to us. These are not of course exclusive functions: definitions as first principles are simultaneously revealing substance to us. The importance of the theory of definition then resides in the ability of immediate definition to bridge the logical and the metaphysical.

CHAPTER ONE

ARISTOTLE ON DIVISION

Aristotle's theory of definition begins with Plato, or rather with Aristotle's modifications to Plato's methods of definition, and so we need first to consider to what extent Aristotle adopts Plato's methods, and to what extent he elaborates and alters them. It is not only a method of definition that Aristotle inherits from Plato, but also certain philosophical commitments, and in particular the commitment to a theory that will allow one to formulate definitions that tell us what something is, and not merely how to tell it apart from other sorts of things. Because Aristotle believes that definition, properly speaking, must tell us what something is, he includes technical rules to guarantee the naturalness of definitions in his theory of definition, i.e. to guarantee that definitions will express what it is to be the object of definition. The technical rules are not distinct from the philosophical interest of the theory; to a large extent, they indicate the philosophical concerns of the theory. At the same time, the technical requirements give rise to certain philosophical problems. This is because, in modifying and, as he thought, improving on Plato's method of definition, Aristotle creates for himself certain difficulties which Plato had not had to confront. If we begin, then, by considering what Plato has to say about definition, we see more clearly the genesis of Aristotle's theory.

Aristotle, like Plato and other of his contemporaries, thought that the right way to formulate definitions was by means of the division of more general kinds into more specific kinds. This division, as we will see, proceeds by attaching distinguishing features to the more general kinds. If we use the method of division, then we formulate definitions in relation to the definitions of other, similar, kinds, and not in isolation. So, for example, if our aim is to define the kind of knowledge that the statesman has (to take an example from Plato's *Statesman*), we will do so by dividing the general kind knowledge into its species, first the theoretical and the practical, then dividing theoretical knowledge into the knowledge that makes judgments and the knowledge that directs—and we will arrive at the definition of the statesman at the same time that we arrive at the definitions of other species of theoretical knowl-

edge (258b–260b). This fact about the method of formulating definitions, the fact that the definitions are always determined in relation to other definitions, has implications for Aristotle's concerns when he sets out his theory of definition. The most important of these implications is that Aristotle is preoccupied with developing techniques for ensuring the naturalness of the definitions. That is, Aristotle (along with many of his contemporaries) was primarily concerned to ensure that the divisions that produce definitions should divide the more general kinds into species that were in fact natural kinds.¹ But a method that produces definitions by comparing one kind with another, and marking off each division of a kind by contrasting it with correlative kinds, might classify kinds without characterizing them according to what they are essentially. What distinguishes Aristotle's theoretical discussions of definition from similar discussions in the works of his contemporaries is his attention to the question of how to ensure that naturalness. Aristotle tries to provide us with precise and technical methods for ensuring naturalness.

We might ask why Plato and Aristotle shared the expectation that a method of division, properly conducted, could produce definitions that would allow us not only to distinguish one kind from another, or understand the sense and reference of a term, but also to understand what it was to be the kind of thing referred to by that term. In other words, why did they both hope and expect that division could be performed in such a way that it would reveal the essence of the definiendum? This expectation may have been inherited, along with the method itself, from Prodicus, or it may have originated with Plato. There is evidence that Prodicus (and perhaps his pupil, Damon) used a method called the division of names, intended to establish the "correctness of names" (ὀνομάτων ὀρθότητος).² It is not clear whether this method of division was understood to be a way of determining what things are, or a way of classifying things. The distinction matters, because it bears on the question of the naturalness of divisions. One might classify kinds without saying anything about what they are essentially—and so one might say enough about some kind to distinguish it from other kinds without having stated anything about the nature of the kind. If one is interested in definition only in order to be able to mark off one kind from another, then classification is adequate. If, on the other hand, one wants, as Aris-

¹ These natural kinds are not necessarily animal kinds.

² On Prodicus and diairesis, see C.J. Classen, ed., *Sophistik* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1976), 231–238.

tote does, to formulate definitions that state the nature of a kind, then classification will not be adequate.

Prodicus and Damon are supposed to have used the division of names to establish the correctness of names comparatively, by setting two words next to one another, and asking what they have in common and how they differ.³ In Socrates' expression of approval at the methods of Prodicus we may find evidence that Prodicus conducted divisions in order to reveal the essence of the object of definition. For example, at *Euthydemus* 277e–278a Socrates says “For you must learn first of all, as Prodicus says, the right use of words; and this is just what the two visitors are showing you, because you did not know that people use the word “learn” in two senses—first, when one has no knowledge ... and then afterward gets the knowledge, and second, when one already having the knowledge uses this knowledge to examine this same thing done or spoken.”⁴ This passage may suggest that Plato (and Socrates) believed that Prodicus was interested in division as a method for establishing what things *are*, and not just what words mean. And in the *Protagoras* at 341a4 and the *Meno* at 96d7 Socrates calls himself Prodicus's pupil, presumably in the business of making distinctions, suggesting that what he and Prodicus do in drawing distinctions is the same.

On the other hand, Socrates is sometimes dismissive of Prodicus, suggesting that he does not take his practice of division to have as its aim to reveal natural kinds. For example, at *Charmides* 163d Socrates says, “... for I have heard Prodicus distinguishing among words endlessly.” “Endlessly” (μυρία) in this sentence does not indicate philosophical respect. And at *Theaetetus* 151b Socrates says that he has sent students whom he did not consider to be pregnant to Prodicus and people like him, whose society will profit them. This suggests that Plato may have believed that Prodicus was not interested in definition in order to

³ See Diels Kranz 34; 84A14, 17, 18, 19. At *Laches* 197d Socrates says, “Never mind him, Laches. I don't think you realize that he has procured this wisdom from our friend Damon, and Damon spends most of his time with Prodicus, who has the reputation of being best among the sophists at making such verbal distinctions,” (trans. Cooper). And at 383a–b of the *Cratylus* Cratylus also is said to have been interested in establishing a correspondence between names and their referents, on the view that what a name means is what it refers to. Aristotle, at *Topics* 2.6 112b21–24, refers to division as performed by Prodicus, and calls the divisions of pleasure “names”.

⁴ Unless otherwise noted, translations of Plato's works are from *Plato: The Collected Dialogues of Plato*, ed. E. Hamilton and H. Cairns, trans. L. Cooper (Princeton: Princeton University Press, 1961).

know what things are, but only as a way of determining the meaning of names. At any rate, it is impossible to know from the evidence we have exactly how division as practiced by Damon and Prodicus was conducted, and impossible to know what they understood definition to involve. What is important here is just that some procedure called division, and involving comparison, was used before Plato to establish definitions.⁵

With Plato there is no doubt but that the naturalness of definitions was a concern. One reason for this is that the moral philosophy of the Platonic Socrates depends on the formulation of natural definitions. For the Socrates of Plato's Socratic dialogues, the point of definition seems to be that if we know what a certain virtue is, then we are or can become virtuous, and that knowing what a virtue is involves knowing its definition. Socratic definitions are typically of the virtues, and of the form: "knowledge of X". So, to acquire that knowledge by way of definition is to acquire the virtue itself.⁶ Knowing the definition of a virtue may not in every case be a sufficient condition for virtue, but it does seem to be a necessary condition. If one hopes to acquire virtue by defining virtues, then definition has to be something more than saying what people ordinarily mean by words. If one aspires to a life of virtue, it is necessary to formulate and grasp definitions, which will be accounts of what things are. So Socratic definition introduces the importance of definition as a method of saying what X really is, and not just what the name of X means.

In the case of Aristotle, the motivation for the concern about naturalness is rather different. Aristotle's moral psychology is such that he does not believe that knowledge of virtues, however precise and complete, is

⁵ G.B. Kerferd argues that Prodicus' "linguistic theories had a definite quasi-metaphysical base." His view, which he opposes to the view that Prodicus is interested in the proper meaning of words whereas Socrates is interested in the real thing (a view he attributes to G. Calogero, "Gorgias and the Socratic Principle *Nemo Sua Sponte Peccat*," *Journal of Hellenic Studies* 77 (1957): 12), is that for both Prodicus and Socrates, "the meaning of a word consists in that to which it refers," (G.B. Kerferd, *The Sophistic Movement* (Cambridge: Cambridge University Press, 1981), 46; 73–74; 89–90.

⁶ As an example, consider the passage at *Laches* 190b–c, "Socrates: Then must we not know the nature of virtue? For how can we advise anyone about the best mode of attaining something of whose nature we are wholly ignorant?"; and the passage at *Laches* 193d–e, "Socrates: Then according to your statement, you and I Laches, are not attuned to the Dorian mode, which is a harmony of words and deeds, for our deeds are not in accordance with our words. Anyone would say that we had courage who saw us in action, but not, I imagine, he who heard us talking about courage just now."

sufficient for the possession of that virtue.⁷ So it is not so much definitions of virtues that are of ultimate interest to Aristotle. It is, rather, definitions of the objects of the various demonstrative sciences. Definitions are among the foundations of scientific knowledge. If scientific knowledge, knowledge of the conclusions of demonstrative syllogism, is to have the certainty that Aristotle asserts distinguishes it from other kinds of knowledge, then definitions must themselves have certainty, although it cannot be demonstrable certainty. The importance of accurate and natural definitions for Aristotle is then that the elaboration of bodies of knowledge depends on the accuracy of the definitions which serve as the starting-points of demonstrative syllogisms.

I. *Plato on collection and division*

Because Aristotle inherits the method of division, and the concern with the naturalness of definitions, from Plato, I begin with an account of Plato's interest in division. For both Aristotle and Plato formulating natural definitions turns out to be a question of distinguishing accurately the parts or elements of something complex—the parts of the object of definition. The importance of parts first emerges in the *Theaetetus*. At 206c–208c Socrates offers three ways of understanding what an account (λόγος) might be. The three are: 1) “making one's thought apparent vocally by means of words and verbal expressions” (trans. Cooper) 2) listing the elements (στοιχεῖα) of the object to be defined; 3) distinguishing a mark (σημεῖον) by which the object to be defined differs from all others. While each of these three attempts to determine what an account should be is defeated in the *Theaetetus*, they form collectively a backdrop to Aristotle's discussions of definition. The second and third attempts, in particular, will find an echo in Aristotle's account of definition, insofar as Aristotle will insist that a definition proper is a statement of certain of the elements of what is to be defined, and that those elements (or “parts” as Aristotle calls them) are what distinguishes one kind of thing from another. In the *Theaetetus*, Plato has established a distinction between complexes and the elements of complexes, and argued first, that complexes are knowable and elements unknowable, and second, that elements are knowable and complexes, insofar as they

⁷ EN 6.2 1139a21–27.

are knowable, are nothing more than their elements (201e–202b; 205d–206b). This raises certain questions that Aristotle in turn will take up: what are the elements of something? Material parts or something else? If we know things only when we can give an account of them, if that account is in terms of the elements of the object to be defined, then we must know the elements; but if we cannot give an account of elements how can we know them? The point of the process that Plato and Aristotle call division is that it will allow us to distinguish the elements of a kind. These questions about elements are then pertinent to the discussions of collection and division as a method for arriving at the account of different kinds.

The earliest of the passages in which Plato describes the procedures of collection and division is at *Phaedrus* 265d–e. These same procedures are described in the *Philebus* at 16a–17a, the *Sophist* at 253d, and the *Statesman* at 285b, in very much the same terms, as follows. The definition of a general kind is achieved in the first step, collection, whereby a plurality is brought under a single form (μίαν ἰδέαν), and this single form becomes the subject of study. The single form in question is a general kind. Once the general kind has been discovered, it is divided in the process of division, not into individuals, but into the sub-kinds which it subsumes, i.e. into species. Collection, then, is the method whereby a general kind is identified, and division the method whereby the species of a general kind are defined.⁸

Some guidelines are offered for the execution of these procedures. According to Plato, if division is to be an effective method of definition it must not be arbitrary, in the sense that it must not disregard the natural points of partition. The problems that arise if division is arbitrary in either one of two ways are made evident in the *Statesman* and the *Sophist*, where the method of collection and division is practised. If one makes arbitrary divisions, that is, if one fails to make divisions according to the way in which the kind in question is most naturally divisible, one will either lump together things that are in fact distinct, and so produce an incomplete account (as indicated in the passage at *Statesman* 268b–c), or else one will distinguish things that are in fact one. So arbitrary divisions fail to produce accounts of natural kinds either because they are incomplete in the sense that they include more than the one kind, or

⁸ Plato's terminology varies from one dialogue to another. Sometimes he speaks of similarities and differences (*Statesman*), sometimes of one form and many forms (*Sophist*), sometimes of the limited and the unlimited (*Philebus*).

because they are over-complete in the sense that they isolate something which is not itself a natural kind but some part of a natural kind.

The problems of incompleteness, the first sort of arbitrariness, are best illustrated in the *Statesman* at 268b–c. The kind that has been identified as herdsman and shepherd of the human flock is a kind that includes more than the sought-after statesman. Political science turns out to be, “not the rearing of horses or of some other beast, but the science of the collective rearing of people,” (267d). Farmers, doctors, teachers, and even merchants have, however, as much claim to be engaged in the collective rearing of people as do statesman and if, therefore, one considers the division to be successful one will have to lump all these practices in with statesmanship (268b–c). The Stranger thus points out that the definition must be incorrect, precisely because it does not distinguish the statesman from others who rear people. It does not divide off the statesman completely (τέλεως, 267d).⁹ An account that is incomplete fails, then, because it does not isolate and distinguish the kind in question from other, similar kinds.

The second kind of arbitrariness in division is often a result of proceeding hastily to a part that one thinks is the end-point of the division. This point is made when the Stranger cautions Young Socrates not to break off the class he happens to be interested in without regard for the divisions inherent in the subject: “We should not select one small part in contrast to many great parts, which are not distinct with respect to form. Rather, the part should be co-extensive with a form ... to posit too many parts is not wise. To proceed by dividing down the middle is safer, and one might thereby hit upon the forms more successfully,” (262a–b). One might suppose that Plato’s interest here in forms is primarily as a tool for classification, that it is an interest in ensuring that the differentiae cited should be genuinely different from one another. This is his immediate aim, but, as Balme notes, the most elaborate examples of division in the *Sophist* and the *Statesman* show that Plato’s aim was not primarily to classify but to define: to track down a given object and to discover exactly what it is (εὑρεῖν ὅτι ποτ’ ἔστιν) (*Sophist* 221c).¹⁰ Some evidence for this is Plato’s habit in the *Sophist* and

⁹ Notice that the Stranger supposes that the division can only be completed by starting over again: “It is necessary to travel again, from a different starting-point, along some different path,” (268d).

¹⁰ D.M. Balme, “Aristotle’s Use of Division and Differentiae,” in *Philosophical Issues in Aristotle’s Biology*, ed. A. Gotthelf and J.G. Lennox (Cambridge: Cambridge University Press, 1987), 69–89, 70. See also F. Solmsen, “Dialectic without the Forms,” in

the *Statesman* of producing more than one division for the same object of definition and then producing a single definition from the different results (see, e.g. *Sophist* 221–231). Moreover, in a similar passage the Stranger warns against dividing according to the convenience of one's purpose on the grounds that there are real differences between forms. He says that, while ease and speed in definition are commendable, “To respect this method, that is to be capable of dividing according to forms (κατ' εἶδη), is most important and primary,” (286d). All of this suggests that Plato's interest in the method of division is an interest in definitions that state what something is by setting out the forms in which it participates—rather than an interest in definition as classification by way of forms.

It is plain, then, that insofar as Plato offers guidelines for the execution of the method of collection and division, those guidelines are intended to ensure the naturalness of the divisions. The naturalness of the divisions is itself intended to ensure that the accounts of items arrived at by the method will be accounts of what some kind is, and not merely accounts useful for the classification of kinds.

II. Aristotle on collection and division

I have been focusing on Plato's provisions to ensure that the process of division should produce the natural or non-arbitrary elements of the kind under division. Aristotle clearly inherited this method of division from Plato, along with the concern for naturalness. The resemblance between Aristotle's and Plato's methods can be demonstrated in several respects: their procedures are similar; their conception of the object of definition is at least superficially similar, and, most strikingly, they share a common concern with the formulation of definitions that reflect natural kinds rather than arbitrarily designated classes.¹¹ At the same time,

Aristotle on Dialectic: the Topics, ed G.E.L. Owen (Oxford: Clarendon, 1968), 49. Solmsen remarks that Plato's interest in the question precedes even his preoccupation with Forms.

¹¹ For a list of the passages in which Aristotle criticizes Plato or Platonic method and use of division, and a discussion of those passages, see H. Cherniss, *Aristotle's Criticism of Plato and the Academy* (Baltimore: John Hopkins Press, 1944) Chapter One. For an account of the Platonic method see J.M.E. Moravcsik, “The Anatomy of Plato's Divisions,” in *Exegesis and Argument, Phronesis* Supplementary Volume I, ed E.N. Lee, A.P.D. Mourelatos, R.M. Rorty (Assen: Van Gorcum, 1973), 324–348. For analyses of

in both logical and biological treatises Aristotle is critical of collection and division as formulated and employed in the later dialogues.¹²

Aristotle suggests improvements to Plato's method of division, and to this extent he is critical of Plato's method and interested in revising it, as well as developing or elaborating it.¹³ In the course of this chapter I shall focus on two concerns about division that Aristotle expresses in his criticisms. The first is that there must be rules to ensure that the procedure will indeed allow us to formulate definitions that reflect natural kinds—definitions that state the essence of some natural kind. Plato too, as we have seen, insists that divisions must be natural, but he does not set out precise rules to guarantee that naturalness. The second of Aristotle's concerns is about proof: Aristotle insists that Plato has not shown how collection and division can prove the definitions that result from the method. This is more puzzling than the first of the concerns because there is nothing in the text of Plato to indicate that it was his intention to show that collection and division *prove* (in Aristotle's sense of ἀποδείκνυμι) definitions.¹⁴

My aim in this section is to show that Aristotle shares Plato's concern with conducting division according to nature, and avoiding arbitrary or artificial distinctions, by focusing on the first of these concerns. I want to show that Aristotle, unlike Plato, offers technical rules—and not merely general guidelines—for practicing non-arbitrary divisions. I shall first establish that Aristotle accepts division as the appropriate method for arriving at definitions, and then set out the procedures of collection and division as he describes them. Finally, I shall show

the improvements Aristotle thought necessary to the Platonic method see J.D.G. Evans, *Aristotle's Concept of Dialectic* (Cambridge: Cambridge University Press, 1977) 111–122 and Balme, "Aristotle's Use of Division and Differentiae," 69–80. P. Shorey ("The Origin of the Syllogism," *Classical Philology* 19, no. 1 [1924]: 1–19, 4) remarks that Aristotle's most serious criticism of diairesis was that it did not prove, but at the most assumed, a definition.

¹² Aristotle's criticisms may be aimed at Plato or at other members of the Academy, notably Speusippus. See Balme, "Aristotle's Use of Division and Differentiae," 74; see also H. Cherniss, *Aristotle's Criticism of Plato and the Academy*, 54–58.

¹³ Aristotle's criticisms are, as one would expect, specific to their contexts. In the *Topics* (143b11–32) and the *Parts of Animals* (642b10–26), he is concerned with certain technical aspects of the procedure of division. In these passages his criticisms concentrate on the use of dichotomous and privative divisions.

¹⁴ In the *Analytics* (46a31–39 and 92a11–15) and *Metaphysics* Aristotle is concerned to show that division is not a method that *proves* the definition of a thing. In these passages the discussion centers on the possibilities for, and the constraints on, syllogistic reasoning.

that Aristotle's introduction of the prohibition on dichotomous and privative division and of the requirement of successive division not only establishes technical rules intended to ensure the naturalness of division, but also expresses Aristotle's view that the definitions we arrive at through division should have a certain unity in order to reflect the unity of the objects they define. That interest in the unity of definitions and their objects will raise the question whether Plato and Aristotle conceive of the object of definition differently. That question I will pursue in the next section.

Let me first establish that Aristotle recognizes the usefulness of division. The evidence for this is largely indirect, and I will discuss it at greater length in later chapters. First, Aristotle believes that definitions ought to be constructed by identifying the genus and the differentia that mark off the kind to be defined, and that the only way to determine the appropriate differentiae of a genus is to conduct a division of that genus. As a result he believes that we must conduct divisions in order to arrive at the elements of a definition. At *Posterior Analytics* 2.13 96b15–97a6. Aristotle offers instructions for conducting divisions, with explicit references to genus and differentiae. At *Metaphysics* 7.12 1037b27–30 he tells us that in definitions formulated according to division there is nothing except the first genus (where “first” means “first in a division”) and the differentiae. These passages make clear that there will be definitions formulated by stating the genus and differentiae of the object of definition, and that those definitions will be realized through the procedure of division.

Second, Aristotle argues that the genus and differentiae of a species are more intelligible than and prior to the species they define:

... since a correct definition must define a thing through its genus and its differentiae, and these belong to the order of things which are without qualification more intelligible than, and prior to, the species. For destroy the genus and differentia, and the species too is destroyed, so that these are prior to the species. (*Top.* 6.4 141b27–30)¹⁵

That they are prior to and more intelligible than that which they define is crucial; it is what gives them explanatory power. This is why Aristotle cautions us against trying to explain what is “higher” by what is “lower” (e.g. trying to define the good by reference to virtue)—because a well-

¹⁵ Unless otherwise stated, the translations of Aristotle's works are either my own, or are from *The Complete Works of Aristotle*, ed. J. Barnes (Princeton: Princeton University Press, 1984). In some instances I have made modifications to the translations.

conducted division will set out the causal and explanatory relations among objects of definitions (*Top.* 6.4 142b11–17). And the parts of the form, which are represented by the genus and differentia(e) are prior to the form, but the parts of the matter are not (*Meta.* 1035b11–14). The notion of priority that Aristotle appeals to in these contexts is clearly a notion tied to the procedure of division: to be prior is to be higher on the schema of a division. This is the case even though Aristotle explicates the sense of priority in terms of existence (if the genus and differentiae were to be destroyed, then the species would be destroyed). The structure of division is precisely intended to reflect certain ontological relations.

Moreover, Aristotle assumes that we will use the method of division for arriving at definitions, even when he is critical of the method or minimizes its possibilities. For example, when stating one of the ways in which one might go wrong in assigning differentiae to a genus, he says, “Further, we must see whether the differentia stated possesses anything that is co-ordinate with it in a division; for, if not, clearly the one stated will not be a differentia of the genus. For a genus is always divided by differentiae that are co-ordinate members of a division,” (*Topics* 143a34–b1). Division is, then, the method by which one sets out the differentiae, some of which will ultimately enter into the definition. At the same time, Aristotle insists on the difference between division on the one hand and syllogistic and demonstration on the other. “It is easy to see that division by genera is a small part of the method we have described [i.e. syllogistic]; for division is, so to speak, a weak deduction [συλλογισμός]. For what it ought to prove, it assumes (αἰτεῖται) and it always reasons to (συλλογίζεται) something higher up (ἄνωθεν),” (*An. Pr.* 1.31 46a31–34). In what follows these failings of division are attributed to other practitioners of the method, “For this very point had escaped all those who used the method of division; and they attempted to persuade people that it was possible to make a demonstration of substance and essence. Consequently, they did not understand what it is possible to deduce (συλλογίσασθαι) by division, nor did they understand that it was possible [to deduce] in the manner we have described,” (*An. Pr.* 1.31 46a34–39). This already suggests that Aristotle has reforms to make in the procedure of division, in order to make it legitimate for certain purposes. But this much is clear—that Aristotle agrees with Plato that there is a place for division in philosophical method, and that its products are definitions.

i. *The method of collection and division*

I have been arguing that Aristotle agrees with Plato that collection and division are useful, and indeed that we should routinely use collection and division to produce definitions. The method of collection and division as described and used by Plato is not, however, adequate to the task of defining what Aristotle takes to be the objects of definition (I will say more about those objects below). And so, while Aristotle offers guidelines to the procedure that are similar to Plato's, he also introduces certain modifications to the procedure. I begin with the procedures as Aristotle describes them, and then turn to some of the modifications that he advocates.

In the final chapter of the *Posterior Analytics*, where he discusses the acquisition of universals (which may be either concepts or predicates), Aristotle recognizes the need for a process very like Plato's collection (100a14–b3): “when one of the undifferentiated things makes a stand, there is a primitive universal in the mind (for though one perceives the particular, perception is of the universal—e.g. of person but not of Callias the person); again a stand is made in these, until what has no parts and is universal stands—e.g. such and such an animal stands, until animal does, and in this a stand is made in the same way.”¹⁶ This passage suggests that Aristotle understands collection, as a psychological process, to be a movement from the perception of lower universals (e.g. “man”) to higher universals (first, “such and such an animal”, then “animal”).¹⁷ The lower universals must be multiple, given

¹⁶ One difference is that Aristotle's procedure here clearly begins with individuals and moves on to kinds. Plato, on the other hand, does not habitually begin the process with individuals; the first collection is a collection of kinds. So, for example, in the *Phaedrus* the items collected are not particular instances of madness, but species of madness—inherited madness, creative madness, and so on. This feature of Plato's method brings into question the purpose of the process of division. It is division, after all, that is supposed to isolate the kinds included in the collection. If these kinds have already been isolated before being included in the collection, division is pointless. This, in fact, is part of Aristotle's complaint when he observes that Platonic division pretends to be proving something when in fact it is begging the question (*An. Po.* 92a11–15). Plato could address this objection easily enough by beginning with individuals; Aristotle himself has to allow that we have some way of recognizing similarities among individuals to form the first universals (100a14–b3).

¹⁷ This example might seem somewhat peculiar, given Aristotle's division of animal classes in the *PA* 1.5 645b25–26, where he seems to take people to be in a division by themselves. I do not think this is genuinely worrying, because although “people” as a division is certainly not, on Aristotle's view, divisible into sub-species, it is a division

the imagery of a stand: in a battle, a single combatant cannot make a stand; it is the action of a collective, or of a member of a collective.

Many questions of interpretation haunt this passage, and the chapter generally. Among them are: Are the universals in question concepts or propositions? Does the passage offer us a “genetic” account of the origins of knowledge or rather a description of induction (ἐπαγωγή) as a process of acquiring general knowledge? If the process begins with perception how can it end in the intellectual state (νοῦς), which is not an apprehension of perceptible objects, but rather a grasp of essences? How can this passage account for the acquisition of first principles that are not definitions but axioms and hypotheses? Does Aristotle here aim to show us how first principles are known, or rather how principles are known *as principles*? The passage seems to suggest that we acquire knowledge of species before we acquire knowledge of the genera of those species, and yet Aristotle believes that knowledge of species involves knowledge of the genera (as well as the differentiae) of those species; can these be compatible claims?¹⁸ I will return to the last of these questions in Chapter Two, and argue that we can have knowledge (of a kind) of species before we know the genus and differentiae that distinguish that species. For the moment I want only to establish that Aristotle does in this passage describe the collection and comparison of perceptible individuals which gives rise to universals in the soul. What interests me here is the similarity of the process described in 2.19 with that which Plato calls collection.

In *Posterior Analytics* 2.13, Aristotle describes a process like division, the procedure whereby differentiae are assigned to a genus in order to differentiate species, i.e. to divide the genus: “of the attributes which belong always to each thing there are some which are wider in extent than it but not wider than its genus ... It is such attributes which we

of “blooded animals”. So this example in the *An. Po.* may intend us to assume we are moving from “man” and “oviparous blooded animals” to “blooded animals” (i.e. “such and such an animal”) to “animal”.

¹⁸ See W.D. Ross, *Aristotle's Prior and Posterior Analytics* (Oxford: Oxford University Press, 1949), 49; D.W. Hamlyn, “Aristotelian *Epagoge*,” *Phronesis* 21 (1976), 167–184; Robert Bolton, “Aristotle's Method in Natural Science: *Physics* I” in *Aristotle's Physics: A Collection of Essays*, ed. Lindsay Judson (Oxford: Clarendon, 1991) 1–29, especially 2–9; Greg Bayer, “Coming to Know Principles in *Posterior Analytics* II. 19,” *Apeiron* 30, no. 2 (1997): 109–142; Richard D. McKirhan, Jr., *Principles and Proofs: Aristotle's Theory of Demonstrative Science* (Princeton: Princeton University Press, 1992), 235–259; Jonathan Barnes, *Aristotle's Posterior Analytics*, 2nd ed. (Oxford: Clarendon, 1994); David Charles, *Aristotle on Meaning and Essence*, 265–272.

have to select, up to the exact point at which they are severally of wider extent than the subject but collectively coextensive with it,” (96a24–34; trans. Mure, modified). “Selecting” the attributes is a question of determining the differentiae that mark off one species of a genus from another. These attributes or differentiae will each individually belong to members of other species (so “biped” will belong to birds, as well as people, and “featherless” to many animals other than people), but an accurate list of the differentiae of a species will belong, as a collectivity, only to members of that species. Thus in this passage it is not individuals or kinds (individual members of species, or species) that constitute the divisions; it is predicates of kinds, differentiae. Aristotle’s example is a triplet, the defining predicates of which are: number, odd, prime, prime in a particular sense. Elaborating on the procedure of division, Aristotle says at 2.13 96b15–19:

When you are dealing with some whole, you should divide the kind into what is atomic in form, i.e. into the primitives (e.g. number into triplet and pair). Then you should try to get definitions of these items (e.g. of straight line and circle and right angle).

The meaning of this passage is not transparent; but it is evident that the first lines are a description of division, and division intended to produce definitions.¹⁹ Aristotle continues: “To establish a definition through divisions, you must aim for three things: you must take what is predicated in what the thing is (ἐν τῷ τί ἐστίν); you must order these items as first or second; and you must ensure that these are all there are,” (97a23–26). In other words: (1) the differentiae must be essential predicates, because “what is predicated in what the thing is” is one of the kinds of essential predicate that Aristotle describes at *Posterior Analytics* 1.4 73a34–73b5 (to say that the differentiae must be predicated

¹⁹ Barnes says of this passage, “If [it] has a coherent interpretation, it remains to be found,” (Barnes, 244). In particular, it is difficult to know what Aristotle means here by “what is atomic in form, i.e. the primitives” (τὰ ἄτομα τῷ εἶδει τὰ πρῶτα) and “the primitive common items” (τῶν κοινῶν πρῶτων). Barnes argues that “atom” here cannot mean the same thing in each of its occurrences in this passage—neither “infima species” nor “primitive term” nor “primary subject of predication”. See also O. Goldin, “Atoms, complexes, and demonstration: *Posterior Analytics* 96b15–25,” *Studies in History and Philosophy of Science* 35 (2004): 707–727. Goldin offers an extended analysis and interpretation of 2.13 96b15–25. He identifies one of the questions of interpretation as, “What does it mean to divide the kind under consideration into the primary things atomic in kind?” (709), and distinguishes two ways of understanding “the primary things atomic in kind”: (a) infima species and (b) basic terms employed in defining the kinds (711). He argues for (a) which he traces back to Pacius.

“in what the thing is” does not mean in this case that the differentiae state the essence of the genus that they divide, but rather that in order to state the essence of the differentiae one must mention the genus);²⁰ (2) The division must be performed successively, because to order these essential predicates as first or second can only mean that one should order the essential predicates as they occur in a properly conducted successive division, where, e.g. “oviparous” is divided into “oviparous laying perfect eggs” and “oviparous laying imperfect eggs” rather than into something arbitrary like “brown” and “black”; and (3) it must be complete, that is, one must continue dividing up until the point at which division would produce not species of a genus but arbitrary classes. The second and third of these requirements, namely the requirement that division should be performed successively, and the requirement that it should be complete, I discuss below.

We see, then, that the process of collection described by Plato has a parallel in the process described by Aristotle: a method for constructing and isolating, at the outset, the genus or general kind. Plato’s method of division finds its parallel in Aristotle in the assignment of differentiae to the genus in order to identify the various species and to distinguish them from one another.

The similarities between Plato and Aristotle are not, however, only methodological. Both express certain concerns pertinent to the method of division, in particular the concern that divisions might be arbitrary, and indicate certain motivations for taking the method seriously. We have already seen that Plato has a concern with non-arbitrary divisions, because he thinks that if we can ensure a non-arbitrary division we will be able to discover what something is. Aristotle indicates the same concern with ensuring that definitions should express what the object of definition is. He offers as a definition of definition, “a formula” (λόγος) signifying what something is (τί ἐστὶ) at *Posterior Analytics* 2.10 93b29, or signifying its essence (τὸ τί ἦν εἶναι) at *Topics* 1.5 101b38–102a1 and *Metaphysics* 7.5 1031a12. Again, in the *Posterior Analytics* Aristotle claims that definition (in one sense) is an indemonstrable positing of what something is (2.10 94a10); and in the *Metaphysics* he says that there is an essence only of things the formulae of which are definitions, and that these things are primary (7.4 1030a6–7).

²⁰ I will discuss this sense in which a predicate may be essential at further length, and distinguish it from the other senses in which a predicate may be said to be essential, below.

Aristotle, then, like Plato, understands the purpose of definition through division to be to make clear the nature of kinds (and not to be the conventional or arbitrary designation of classes or kinds). Aristotle, like Plato, assumes that there are natural kinds to be defined, kinds that have unity quite apart from our recognition of them. (This of course neither commits one to a theory of kinds as separate entities, nor is it inconsistent with such a theory.) Finally, Aristotle agrees with Plato that definitions are unique, and hence that there will be only one correct division, or set of divisions, which will render exactly one characterization of a kind (see *Topics* 6.4 141a34–b2). Thus, in the *Sophist* at 232a the Stranger says, “Do you then understand, whenever someone should appear to be knowledgeable in many [sciences], and yet should be addressed by the name of a single science, that this impression [namely that he is knowledgeable in many rather than in one] is not correct? But it is clear that one who has this impression of some science is not able to observe that [aspect] of it by which all these kinds of knowledge are related, and therefore calls someone who has these kinds of knowledge by many names instead of one.” The point is that all six of the characterizations of the sophist which the interlocutors have found by means of divisions can be correct only if there is something common to all of them. And it is that common aspect which will be the correct definition of the sophist.²¹ The correctness of the definition is itself then a function of the naturalness of the definition.

All of these points of agreement make clear that Aristotle agrees most fundamentally with Plato that correct, unique definitions can result only from non-arbitrary divisions. But there is a significant difference between Aristotle and Plato in their provisions for the naturalness of divisions. Plato does not suggest systematic ways in which one might ensure natural divisions, contenting himself with warning of the danger of arbitrary divisions and issuing general guidelines for avoiding such divisions. While he insists that there is a difference between a part (μέρος) and a kind (εἶδος), where a kind is a natural division and a part may be an arbitrary division, he offers no indications as to how to distinguish these, raising the problem only to dismiss it for some

²¹ Moravcsik says that Plato considers his definitions to be unique only in the sense that they mark off one kind from all others and not in the sense that there can be only one such characterization (Moravcsik, “The Anatomy of Plato’s Divisions,” 332). But this passage from the *Sophist* indicates that Plato thought that definitions by division should be unique in the stronger sense.

other time, and finally leaving it unaddressed (*Statesman*, 262e–263b).²² Aristotle, by contrast, is motivated in part by the concern to avoid arbitrary divisions to introduce several modifications to the procedure of division.

I turn now to two of these modifications, the prohibition on dichotomous and privative divisions, and the requirement for successive differentiation. These are both modifications that Aristotle supposes will make arbitrary division, i.e. division into parts but not kinds, impossible, or at least less likely. These modifications of the method of division are important not only insofar as they give content to Aristotle's claim that we must avoid arbitrary divisions by instituting certain practices as part of the method, but also insofar as they lead us to view the object of Aristotelian definition in light of the procedure intended to render that object clear.

ii. *The prohibition on dichotomous and privative divisions*

We have seen that Plato's concern with the completeness of division is one manifestation of his concern with non-arbitrary division; Plato insists that by ensuring a division is complete one helps to ensure that it is non-arbitrary. He seems to understand completeness to be a matter of taking a division as far as the *infima* species, and so as a matter of finishing what one starts. Aristotle's approach to completeness sees it rather as a matter with which one must be concerned at the outset of a division. He argues that to ensure completeness one must prohibit two practices: the practice of dividing initially by only two differentiae, and the practice of dividing by a positive differentia and its corresponding privative differentia. Aristotle's objection to the first practice is that it is difficult or impossible: "Some people [think they can] grasp each individual thing by dividing the genus into two different parts. But this is either difficult or impossible," (*De part. an.* 1.2 642b5–7; trans. Peck). As a related point he adds an objection to the second practice: "A privative differentia is not, insofar as it is privative, a differentia at all. For it is impossible that there should be a species of what is not,

²² Moravcsik writes, "It is crucial for the understanding of the Method of Division that Plato gives no mechanical procedure for finding natural kinds. Plato does not think that there are any such procedures," ("The Anatomy of Plato's Divisions," 344). There can be no disputing that Plato gives no mechanical (or non-mechanical) procedure for finding natural kinds, but can we know that Plato did not think there were, or might be, any such procedures?

for example a species of footless or of featherless, as there is a species of feathered and footed. But there must be species of differentiae that are common. If there were not, why would such a differentia count as common and not as peculiar to something?" (642b22–26; trans. Peck). And again, "It is impossible to grasp any individual species by dividing the genus in two, as some have thought," (643b26–28; trans. Peck).

There are two criticisms in these passages, one of dichotomous division, and one of privative division; they are related in that if one were to dispense with dichotomous division one would be unlikely to practice privative division. Balme has argued persuasively that Aristotle's criticism of dichotomous division is not a criticism of division into two classes, but a criticism of division by one differentia at a time. Rather than dividing a genus by one differentia, one should first specify all the generic differentiae (e.g. in the case of a class like birds, setting out biped, winged, with beak, neck, tail, and so on) and then further differentiate each.²³ This requirement complements the requirement of successive differentiation in that it admits a variety of differentiae into the definition, thus ensuring that the definition will be complete without disrupting the entailment relations within any given line of division.

Aristotle's prohibition, then, is on an initial or original division of a genus which does not posit all the differentiae of the genus simultaneously, but only one of those differentiae, thus dividing the genus in the first instance into two classes rather than more than two. Expressed as a criticism of Plato, it seems strange, but only if we suppose that Aristotle is accusing Plato of dividing each differentia at each stage of division into two. For Plato did not practice, or advocate, dichotomous division in the sense of dividing each differentia at each stage into two. In both the *Statesman* and the *Philebus* dichotomous division is recommended as the best way to divide according to real subdivisions, but it is allowed that there are cases where a class must be divided into at least three subdivisions (*Statesman* 262a–b; *Philebus* 16c–17a). We can, however, make sense of Aristotle's criticism of Plato with respect to dichotomous division if we assume that he means *initial* dichotomous division, since Plato does typically begin with a dichotomous division.

The criticism of division by privative terms here might seem curious for two reasons. First, Aristotle is equally guilty with Plato of sug-

²³ Balme, "Aristotle's Use of Division and Differentiae," 74.

gesting privative terms as differentiae; for example, he often mentions the formula “featherless biped” as an example of definition. Second, Plato is not unaware of the difficulties that such differentiae involve. In the passage of the *Statesman* mentioned above (262a–b), the Stranger gives as a reason for favouring dichotomous divisions that they are less likely to render differences such as “Greek” and “non-Greek”, the sort of division that the Stranger considers arbitrary. But again, if Aristotle means to argue not that privative terms should be excluded from all levels of division, but only from the first, from the initial positing of differentiae which, as we have just seen, should not be dichotomous, then “featherless” is less surprising as an example of a differentia.

The criticism of privative division is reiterated in the *Topics*, although Aristotle there cites a different reason for excluding such divisions from the procedure: “It will turn out that the genus shares in its species. For every magnitude either has width or does not have width, because either the affirmation or the denial is true in every case. So that the genus line (which is a magnitude) will either have width or not have width,” (6.6 143b12–17). Privative divisions are, then, problematic in two ways: they cannot be further divided because they cannot be further specified, and they make necessary the identification of the genus with one of its species (by appeal to the law of excluded middle). Both of these problems are indicative most immediately of incompleteness; if one divides initially privatively, one will likely end the procedure with an incomplete definition. But they are also indicative, more generally, of the arbitrariness, rather than naturalness, of privative division—a natural (initial) division of a genus will be one which does not require any of the differentiae to be attributed to the genus itself, and one which does permit of further differentiation.

The concern with dichotomous and privative divisions is then a concern about completeness, and so, ultimately, a concern about arbitrary divisions. This is because Aristotle, like Plato, believes that only a complete division can ensure natural or non-arbitrary divisions and hence correct definitions, because only if we complete a division (in the different senses of completeness suggested by Plato and Aristotle) can we be sure that the classes we have distinguished will not be subject to further discriminations along natural lines.

iii. *The requirement of successive differentiation*

The relation between or among the parts of a definition is also the point of a second modification Aristotle proposes to the method of division, the requirement for successive differentiation. This is the requirement that one should sub-divide kinds in such a way that the kind which is sub-divided should be predicable of all those into which it is sub-divided, but the terms of the sub-division should not be predicable of the kind of which they are sub-divisions (*An. Po.* 97a28–34; *Meta.* 1038a8–14). So, for example, “biped” and “quadruped” are not predicable of “footed”. That is, we cannot say that footed things are biped (because some footed things are not biped, but quadruped), and similarly we cannot say that footed things are quadruped. But “footed” is predicable of each of the terms by which it is divided. We can say that biped things are footed, and that quadruped things are footed, just because what it means to be biped or quadruped is to have a certain number of feet. Hence “biped” and “quadruped” are appropriate divisions of “footed”. Should one, on the other hand, try to divide “footed” into “solitary” and “gregarious”, one would find that “gregarious” is predicable of “footed”, because we can say without logical difficulty that footed things are gregarious. Hence “solitary” and “gregarious” are inappropriate divisions of “footed”. Each class designated by a differentia must be divided further into its own sub-classes rather than into the divisions appropriate to some other class (again, for example, the class of footed animals must be divided into quadruped and biped rather than into solitary and gregarious). This preserves the entailment relations within the line of division, since “quadruped”, for example, entails “footed”, whereas “solitary” does not. That the terms lower in a division should entail those higher in a division is crucial to Aristotle’s conception of the natural division; it is a sign that we are conducting the division according to the natural distinctions if the terms we choose to divide a genus into species entail the species. At the same time, the requirement offers some guidance as to how to choose differentiae: biped and quadruped are sorts of footedness; solitary and gregarious are not.

Balme suggests that the requirement for successive differentiation is “intended to ensure that the final differentia should entail its predecessors.”²⁴ This is true enough. But that the final differentia should entail

²⁴ Balme, “Aristotle’s Use of Division and Differentiae,” 73.

its predecessors is important just because the requirement of entailment will prevent arbitrary divisions by guiding the process along natural lines. If one must divide footed by way of the specifications of footedness, one knows at least which sorts of differences among things to look for. The requirement does not, of course, provide an absolute guarantee, for nothing prevents an inept divider from choosing hairy-footed and smooth-footed as the varieties of footedness. But insofar as the requirement offers guidance in choosing differentiae for each new step of the division, it prevents arbitrary divisions. This is a benefit of successive differentiation that Plato would perceive as such—it promotes division along natural rather than arbitrary lines, by providing a test of sorts for the naturalness of sub-division (namely, do the terms of a sub-division entail the term which they sub-divide?).

But the requirement of successive differentiation is intended by Aristotle not only to promote non-arbitrary or natural division by guiding the choice of differentiae, but also to guarantee the unity of the final differentia with the primary differentia, and ultimately with the genus, and thereby again to promote non-arbitrary divisions. And while naturalness, as we have seen, is a concern shared by Aristotle and Plato, unity is a concern new with Aristotle. There is no problem of unity for Plato because he does not require that the parts of his definitions should form unities. Platonic definitions are intended only to list the forms in which the kind in question participates. These forms do not and need not collectively constitute a unity.²⁵ (Aristotle complains at *Meta.* 8.6 1045a14–20, “What then is it that makes man one; why is he one and not many, e.g. animal—biped, especially if there are, as some say, an ideal animal and an ideal biped? Why are not those Ideas the ideal man, so that men would exist by participation not in man, nor in one Idea, but in two, animal and biped? And in general man would be not one but more than one thing, animal and biped.”) Hence Aristotle introduces the requirement of successive differentiation not only to prevent arbitrary division but also in order to guarantee the unity of the definition, and ultimately to guarantee the unity of the parts of the essence that is the object of definition.

It is because Aristotle conceives of the object of definition as a unity that he believes the naturalness of divisions can only be guaranteed by successive differentiation. The entailment of the primary by the final

²⁵ This is true whether forms for Plato are ontological or logical entities, a point discussed below, and again in Chapter Five.

differentia secures the unity of these two terms; the unity of biped with footed is unproblematic precisely because footed creatures occur in the world only as biped or quadruped or with some other definite number of feet. That is, Aristotle claims not to have to account for the unity of two different entities, footedness and bipedness. On his view, there is no entity called “footedness”. Nor, indeed, are there entities called “bipedness” and “animality”. The unity of the final differentia with the genus is secured because neither animality nor bipedness occurs as such in the world, but some species of biped animal does. Unity is then unproblematic because it turns out that one does not have to account for how two things are one. There are not two things in the first place. It is Plato’s failure to see this—to see, that is, that division as he practices it leads to definitions constituted by distinct entities, without an account of the unity of those entities—that Aristotle criticizes, and criticizes on the grounds that it leads to arbitrary division.²⁶ “And in both cases—when you prove according to a division and when you prove with a deduction in this way—there is the same puzzle: why will a person be a two-footed terrestrial animal and not animal and terrestrial? For from what is assumed there is no necessity that what is predicated should become a unity, but it is as if the same person were musical and literate,” (*An. Po.* 2.6 92a27–32). The point is that unless we make special provisions in our method of division to ensure the unity of the parts of the definition that results from division, we will find that what we are defining is no more likely to have a definable essence than some arbitrary entity like a musical, literate person.

So Aristotle’s criticism of Plato is not just that Plato fails to provide technical means for ensuring that divisions will not be arbitrary, but also that in failing to recognize that the unity of the elements of a definition is necessary he fails to recognize an important aspect of naturalness. If a definition is arrived at by non-arbitrary divisions, it will be natural, and that naturalness will be manifested in the unity of the elements of the definition. Aristotle is not only providing technical rules for the execution of non-arbitrary divisions, he is also deepening the understanding of what a definition that results from non-arbitrary divisions will look like, by insisting that its parts will have unity.

²⁶ We will consider below in Chapter Four the issue of unity more fully. For now it suffices to say that Plato’s disregard for the unity of definition is one of Aristotle’s criticisms of his method.

III. *What is the object of definition by division?*

I have been arguing that Aristotle shares with Plato a concern that the definitions produced by the method of division should be natural, which is to say, that they should reflect the natural divisions of kinds as they occur. What might appear to be a difference between Aristotle and Plato, Aristotle's introduction of the requirement of successive differentiation in division, is in fact an innovation intended to ensure the common goal of non-arbitrary division. As such, it does not represent a disagreement between Plato and Aristotle so much as a development in the method held by both to be the correct method for the definition of kinds. I have also said that Plato and Aristotle agree that the object of definition, properly, is form. There is, however, an important difference between Plato and Aristotle in their understanding of form as the object of definition: Plato does not seem to acknowledge the difficulties attendant on understanding the parts of definable form as a unity and maintains a conception of definable form as wholly formal. Aristotle, on the other hand, maintains that the parts of definable form must have unity. Ensuring that unity involves introducing into the definition a term that represents the matter of the kind, which implies that the form itself involves matter. This difference explains, I will suggest, why Aristotle introduces the requirement for successive differentiation and the concern with unity. So these innovations in the method of division and the theory of definition, while not themselves constituting disagreements with Plato, do make manifest an important difference between Plato and Aristotle.

The difference between Plato and Aristotle in their conception of definable form is often understood rather differently from the way in which I understand it, so I need to say first why that understanding of the difference is mistaken. No one doubts that Aristotle, like Plato, takes the proper object of definition to be an εἶδος, a form. There are two respects in which it is commonly argued that Aristotle diverged from Plato in his treatment of form as the object of definition. First, many commentators hold that Plato supported a theory of forms as items separate from the individuals of this world, whereas Aristotle argued for a theory of forms as immanent in the individuals of this world.²⁷

²⁷ For Plato's first account of the forms as separate, see *Phaedo* 78d. For instances in the secondary literature of forms in middle and late-period dialogues construed as separate entities, see G. Vlastos, "Reasons and Causes in the *Phaedo*" in *Plato: A Collection*

Second, in contexts where division and definition are discussed or practiced, many argue that while for Plato the procedure of division is a way to exhibit relations among ontological entities which are separate forms, for Aristotle it is a way to exhibit certain logical relations among classes, so that they differ in their understanding of what the terms of a division mark off.²⁸ On this view, for Plato a differentia like “biped” is itself a kind, because it is a separate form; for Aristotle, on the other hand, a differentia like “biped” is strictly a logical difference, and not itself a kind; it must be joined with a genus to constitute a kind. This suggests both that Plato and Aristotle attributed different ontological functions to form and that (perhaps as a result) Aristotle also attributed a logical function to form, which Plato did not. I shall take issue with the second part of this claim. I shall show that Plato clearly intended form to perform a logical function in the discussion of division, and hence that division is for him more than a method for displaying the relations among certain ontological entities; I shall also show that the logical function which Aristotle assigns to form in the process of division and definition has certain troublesome implications for the ontological function which he assigns to form.²⁹ I shall suggest here (and argue at further length in Chapter Four) that Aristotle diverges fundamentally from Plato in the understanding of εἶδος as the object of definition in that Aristotle wanted to introduce matter into definable form, whereas Plato conceived of definable form as entirely immaterial.

The clearest evidence for the claim that Plato considered εἶδη to be logical differences, at least in some contexts, is found in the passage in the *Sophist* where Plato indicates how the forms, or kinds, that result from division are related to one another. The Stranger says, “The separation of each thing from all is the disappearance of discourse; for through the blending of forms with one another discourse has come to us,” (259e). Ackrill takes Plato to mean by this that, “Human discourse is possible only because the meanings of general words are related in definite ways; it is essential to language that there be definite rules determining which combination of words do, and which do not, con-

of *Critical Essays II: Modern Studies in Philosophy*, ed. G. Vlastos (Notre Dame: University of Notre Dame Press, 1971), 139–140.

²⁸ See Balme, “Aristotle’s Use of Division and Differentiae,” 68; Moravcsik, “The Anatomy of Plato’s Divisions,” 344.

²⁹ Because of the troublesome implications, it is sometimes argued that the two functions of form are separate. See, for example, Balme 73.

stitute significant sentences.”³⁰ He contrasts this view with that of those (e.g., Cornford, Ross) who think that Plato’s claim is that all statements are about relations between forms, or between things described by means of forms. Recognizing that this commits him to a re-evaluation of the theory of forms, Ackrill suggests that Plato in the *Sophist* held a revised version of this theory, whereby forms are no longer to be conceived as “ethical ideals” and “the metaphysical objects of intuitive and perhaps mystical insight”, but as “fixed concepts” which will guarantee the meaningfulness of discourse.

A similar argument has been made by Moreau with respect to the difference in Plato’s account of the forms between the *Republic* and the *Sophist*. He points out that Plato is interested in dialectic in the *Republic* as a method of discovering first principles by grounding hypotheses in yet higher hypotheses, “... jusqu’à ce qu’on arrive à un principe qui se suffit, à une évidence première et irrécusable.”³¹ Moreau suggests that this will be knowledge of the Good and that this knowledge will have the absolute necessity of a transcendent origin.³² By contrast, Plato’s interest in dialectic in the *Sophist* is, Moreau argues, only as a method of establishing the possibility of discourse. In other words, while Plato assigns to dialectic a metaphysical function in the *Republic*, by the later dialogues its function is strictly logical. Of course it is this later sense of dialectic, dialectic as a method of division, which Aristotle takes over, so that it is hardly surprising if in Aristotle’s work dialectic has a logical function.³³

³⁰ J.L. Ackrill, “Sympleke Eidon,” in *Studies in Plato’s Metaphysics*, ed. R.E. Allen (London: Routledge and Kegan Paul, 1965), 204.

³¹ J. Moreau, “Aristote et la dialectique Platonicienne” in *Aristotle on Dialectic: The Topics*, ed. G.E.L. Owen, 83.

³² Moreau, 84–86.

³³ Another, contending although not incompatible, theory of the nature of form in Plato’s later dialogues is offered by Frede, according to whom Plato’s “... genera consist of species and, ultimately, individuals, into which they can be divided ... If this is so, the genera of the later dialogues can hardly be the forms we know from the middle dialogues. For those are characterized precisely by the fact that they exist separately from the particulars participating in them,” (M. Frede, “The Title, Unity and Authenticity of the Aristotelian *Categories*,” in *Essays in Ancient Philosophy* [Minneapolis: University of Minnesota Press, 1987], 27.) Frede argues that this understanding of form fits with the account of “that which is one, but also many and even indefinitely many, because it can be divided into its species and the individuals which fall under them (Plato, *Phlb.* 16c–e);” moreover, “what Plato has to say about being in the *Sophist* can best be understood on the assumption that this genus itself consists of everything it comprises,” (27). On this view, Platonic forms are now classes rather than individual entities. Of course, Frede’s position is different from that of Ackrill in “Sympleke Eidon.” What is clear is

Plato may have thought that his forms needed to be both logical and ontological entities of a sort in order to perform the double function of explaining certain causal relations (namely, how different particulars share in the same attributes) and explaining certain logical relations (namely, why certain predications are significant). More likely, he recognized the need for the two functions without recognizing that separate, simple, immaterial entities in which individual things somehow participate, on the one hand, and classes or class concepts on the other, are different sorts of things. At any rate, in the dialogues concerned with the method of division, Plato's conception of form is no longer purely ontological, but also logical. And if Plato's view of form is logical as well as ontological, then it is a mistake to characterize the difference between his method of definition and that of Aristotle as a matter of ontological versus logical concerns.³⁴

In Aristotle's case, one finds the logical function of form reflected in definition, which is supposed to mirror the structure of the form of species (*Meta.* 1037b24–27). The three corresponding definitions of definition at *Topics* 101b38–102a1, *Posterior Analytics* 93b29, and *Metaphysics* 1031a12 make clear that definition must express what something is. That is, Aristotle's concern with definition, and therefore with division, is not solely a concern with its formal function in his logic, but also a concern with its adequacy for giving us accounts of natural kinds. Furthermore, Aristotle treats the problem of definition as interchangeable with the problem of specifying what something is; for example, he moves easily from discussing essence to discussing definition in *Metaphysics* 7.4.³⁵ These are only hints of a phenomenon (hints which I will pursue and elaborate in Chapters Two through Five), but sufficient to show that Aristotle's discussion of division and definition is motivated by more than an interest in logical structures, or, put another way, motivated by an interest in logical structures as they reflect natural structures.

I have been arguing that Aristotle did not differ from Plato in his conception of form as the object of definition in one sense: that it was

that the forms of the later dialogues are no longer simply (if at all) separate ontological entities; and that however we interpret Plato's use of them in these dialogues, they must perform the logical function of explaining the possibility of meaningful predication.

³⁴ See Frede, 27.

³⁵ As an explanation for this movement, Aristotle says, "and since the essence is substance, and the definition is a formula of the essence, for this reason we have discussed definition and essential predication," (*Meta.* 1042a17–18).

not the case either that Plato's form was "purely" ontological nor that Aristotle's form was "purely" logical. There is, however, a significant difference in Aristotle's conception of definable form, which accounts for his preoccupation with the issue of unity. Plato's understanding of form as the object of definition is indicated by the passage in the *Statesman* at which the Stranger explains that it is easy to define those things that have visible likenesses, since we can simply point to those likenesses (285e–286a). Of course, only material objects can have visible images. And since immaterial objects do not have visible images, some other method of giving an account of them must be provided.

In the case of the greatest, most honourable things, there is no visible image produced for people, by pointing to which someone who wished to satisfy the soul of an inquirer might satisfy it adequately according to what is suitable for sensible things. Therefore it is necessary to practise to be able to give and to receive an account of each of these [greatest and most honourable] things; for immaterial things (ἀσώματα), being noblest and greatest, are shown clearly by reasoning and by nothing else, and everything we have just said is for the sake of these things. (285e–286a)

This implies that undertaking to define the sophist or the statesman is really just practice for the definition of things without visible embodiment; we could, at least theoretically, point to a sophist or a statesman, but there are immaterial forms that cannot be pointed out.

Aristotle, on the other hand, does not take division to be a method appropriate for defining objects that do not involve either physical matter or intelligible matter. (Witness his practice: the examples of definition that he most often mentions are such as the definition of some kind of animal—e.g. man as featherless biped animal, or tame biped animal (e.g. *An. Pb.* 92a1; 96b31–32), and the definition of some mathematical object, e.g. triplet as a number that is odd and prime in a particular sense (96a38)). This is because any purely immaterial entity does not have parts; it is an unqualified unity (*Meta.* 1045a36–b1). Unqualified unities cannot be defined by stating the genus and differentia, which Aristotle conceives of as parts of the definition and of the form. Aristotle is, then, interested in defining through division forms that occur in matter—and not as practice for defining form without material manifestations, since the definitions of such forms would have to be radically different in structure from the definitions of enmattered forms. The problem of unity that Aristotle faces in the process of definition through division (i.e. the unity of the parts of definition, the genus and differentiae) has an ontological as well as a logical aspect, and it is the

ontological aspect that he confronts in the *Metaphysics* (at, e.g., 1045a23–35). The problem arises because he understands a definition to be the formula of an εἶδος, and yet he considers it necessary to represent matter in the definition, both because the matter/form composite offers the best model for the unity of parts, and because the definable form of a substance which necessarily is instantiated in matter must somehow acknowledge that materiality. The genus, because it is potentially the species, represents matter. And the unity of genus and differentia then ensures both the unity of the definition and the unity of the εἶδος of which it is a definition. All of this I shall consider at greater length in Chapter Four.

What I wish to emphasize here is that Aristotle's preoccupation with the unity of definition reflects not just a refinement of the procedure of definition, or a more thought-out concern with natural as opposed to arbitrary division; nor is it motivated simply by a conception of form as immanent rather than separate (although that is a motivating factor). Aristotle's concern that definitions arrived at by division should constitute unities of their parts reflects a basic assumption about the forms that are the objects of that definition: that those forms must be complex because they include matter (in some sense) and yet must be unities. And although all of this is elaborated by Aristotle only in the *Metaphysics*, it is anticipated in the logical works with the requirement of successive differentiation. That is, the concern with unity reflected in the requirement of successive differentiation is a concern that makes sense only if we posit a guiding conception of form as complex but necessarily one. These, then, are the philosophical motivations behind successive differentiation as a rule for division: unity can only be achieved when the parts of the definition are related as differentia(e) to genus, and such a relation can only be guaranteed when the differentia(e) are successive, because if they are successive, then the ultimate differentia(e) are natural divisions of the genus.

It is clear, then, that the modifications Aristotle proposes to Plato's procedures of division are intended to ensure the naturalness of divisions—a goal with which Plato would have agreed. The provisions for naturalness include provisions for completeness; and we have seen that Aristotle's criticisms of dichotomous and privative divisions are criticisms of Plato's conception of completeness. More fundamentally, Aristotle's concern is with the conception of the object of definition that Plato's conception of completeness reveals. That is, the prohibition on dichotomous and privative divisions is intended to ensure that the

definitions that result from division are natural in the sense that they reveal completely the different parts of the object of definition. And the requirement of successive differentiation is intended to ensure that the parts of the object of definition identified through the division are such that they form the sort of unity that can indeed be an object of definition.

IV. *Problems*

So far I have been concerned with the claim that Aristotle follows Plato in insisting that division must be pursued along natural, rather than arbitrary, cuts. Aristotle's innovations—the reforms of the method itself, and the concern that definitions should be unities—are, first of all, developments of Platonic division. Insofar as Aristotle's method of division does depart from Plato's, in particular in the conception of the form that is the proper object of definition as complex and yet a unity, the divergence is a symptom of ontological, rather than logical differences.

We have seen that Aristotle follows his predecessors in accepting division as the procedure for formulating definitions. We have also seen that his concern that such definitions should be natural—that is, non-arbitrary and complete—was shared by Plato, and that his criticisms of Plato reflect no disagreement about that basic value, but rather a disagreement about how best to achieve natural divisions, where that disagreement arises from a difference in understanding of the object of definition. So the right way of arriving at natural definitions will depend on the conception of the object of definition. Aristotle then advances certain technical rules for ensuring natural divisions, but these technical rules bring with them certain philosophical problems.

The first of these problems is a conflict in the implications of the requirement of successive differentiation and the rule that initial divisions should not be dichotomous. Aristotle's modifications of division, the requirement of successive differentiation and the requirement that the first division should not be dichotomous, together are intended to ensure the unity of differentiae and genera in definitions resulting from division and to ensure the completeness of these definitions. Yet the requirement of successive differentiation and the requirement of non-dichotomous (initial) divisions seem to be incompatible. We have seen that the requirement of successive differentiation is intended to guaran-

tee that the ultimate differentia in a division will entail all the intermediate differentiae, and that if this relation of entailment holds Aristotle thinks he has a guarantee of the unity of the final differentia with the primary differentia and ultimately with the genus. But the requirement is adequate for ensuring unity in the definition only if there is only one differentia in the definition. For example, if “biped animal” were an adequate definition of something, the entailment of animal by footed would ensure the unity of the definition. Since, however, most kinds will need to be defined by a formula including differentiae from more than one line of division together with the genus (e.g. featherless biped animal) the requirement of successive differentiation ensures only the unity of any one of these differentiae with the genus. This will be true unless one of the differentiae entails the other; but if that were the case one would need to mention only one of the differentiae—the one that entails the other. The requirement of successive differentiation will not, then, in and of itself guarantee the unity of definitions with more than one differentia, because there seems to be no procedure for ensuring unity among the various differentiae of the genus, only a procedure for ensuring unity between any one differentia and the genus. So, it appears that either definitions that mention only one differentia along with the genus are adequate in every case, or Aristotle has a problem with unity in the definition.³⁶ (I will reconsider this problem below in Chapter Four.)

Aristotle implicitly recognizes the incompatibility of the requirement of successive differentiation and the requirement of non-dichotomous division in the *Metaphysics* when he claims that one can admit as many differentiae as one likes into a definition just so long as they are from one line of division (1038a1–4). In this context he seems prepared to abandon the requirement that one should divide the genus by more than one differentia in order to save the unity of definition. We must then ask whether Aristotle in general is prepared to sacrifice the completeness of definitions to the unity of definitions, and if so, why.

A second problem emerging from another of Aristotle’s criticisms of Platonic division is found in the *Analytics* (*An. Pr.* 46a31–39; *An. Po.* 91b12–15 and 96b25–97a6). It is just this, that the method of division does not prove anything. This suggests either 1) that the proponents of division whom Aristotle is criticizing claim that division does provide

³⁶ For this point, see H. Cherniss, *Aristotle’s Criticism of Plato and the Academy*, 53–54.

proof, or 2) that Aristotle himself holds the view that divisions *ought* to prove the definitions they produce. He seems to indict the Platonic method of division on both counts. First, he maintains that those who used the method, "... tried to persuade [people] that a demonstration of substance (περὶ οὐσίας) and essence (τοῦ τί ἐστίν) was possible," (46a35–37). In saying this, Aristotle may have had in mind a passage such as the one I have already quoted from the *Statesman*, where the Stranger speaks of "the most honourable things" being demonstrable (δείκνυσθαι) only by reason (286a). Plato's point is that ostensive definition is suitable for and adequate to embodied things, and that division is employed in the definition of embodied things only as practice for the definition of things without bodies. The implication is clearly that definition by division is a method of demonstrating (in the sense of "pointing out" or "showing") forms in themselves, but not that it is a method of demonstration in the strict sense. And while Aristotle himself advocates using the method of division to formulate definitions so long as one recognizes that it is not a method of proof, he is careful to distinguish definition from demonstration, and to claim that definitions simply are not such that they can be demonstrated in the strict sense (92b35–38).³⁷ There is every reason to think that Plato would agree with this. Aristotle is then certainly mistaken if he is suggesting that Plato thought that division demonstrated (in any technical sense) the definitions it leads to.

With respect to the suggestion that the method of division ought to be such that it demonstrates the definitions which are its conclusions, there is little evidence that Plato or Platonists understood division to be a method of demonstration in Aristotle's sense. Aristotle himself founded demonstrative science on definitions in such a way that the conclusions of demonstration are only as certain as their premises, and yet in the original instances these premises are founded on definitions that are indemonstrable. Aristotle, in other words, has reasons for wanting division as a method of definition to be, if not demonstrative, at least as certain as demonstration, as well as reasons (which he elaborates at length in the *Posterior Analytics*) for wanting definitions to be indemonstrable; but Plato does not have the same epistemological or scientific concerns.

³⁷ Aristotle reconsiders these claims in *An. Po.* 2.8, but he does not withdraw them.

In the *Analytics*, then, Aristotle sharply distinguishes the method of division from the method of demonstration, and places much emphasis on demonstration as a way of arriving at scientific knowledge, which he treats as the ultimate goal of both methods. In drawing this distinction he diverges from Plato, for whom the method of division itself will lead us to the most certain kind of knowledge. According to Aristotle definitions are the starting-points of demonstration, and division, which is not a system of proof, cannot offer demonstrative conclusions, but only these starting points. At the same time, the definitions that are these starting-points are crucial in that the demonstration founded on them will be as vulnerable to criticism as are they. Since Aristotle insists on the certainty of demonstrative conclusions, he must have a means to ensure the certainty of definitions.

Aristotle's modifications, refinements, and improvements of the method of division inherited from Plato leave him then with a set of philosophical problems, problems that he tries to address in the *Topics*, *Analytics*, and *Metaphysics*. First of all, Aristotle has to offer some principles for natural divisions, principles which will satisfy the requirement of successive differentiation, but supplement it, since, as we have seen, successive differentiation by itself cannot guarantee naturalness. The natural divisions will ensure the unity of the definition, a unity founded on the basis of the unity of the form that is the object of definition. Aristotle either has to reconcile the requirement of successive differentiation with the requirements of completeness, by explaining the unity of definitions with more than one differentia, or else he has to abandon the completeness requirements (were he to abandon the requirement of successive differentiation he could make no claims for naturalness or unity in definitions). Second, Aristotle has to argue for the certainty of definitions arrived at through division, without abandoning the claim that we cannot demonstrate definitions. The certainty problem is of course connected to the problem of natural division; definitions will be certain if they proceed from natural divisions, and natural divisions will be those which yield definitions with the requisite certainty.

CHAPTER TWO

THE FOUR TYPES OF DEFINITION

In Chapter One I have focused on the preoccupation with natural divisions that Aristotle inherits from Plato, and the rules Aristotle formulates as a means of ensuring that divisions will be natural, or non-arbitrary. Like Plato, Aristotle clearly thinks that a natural division will result in an accurate definition, and it is this connection between naturalness and accuracy that explains the emphasis he places on rules for ensuring natural division. The accuracy of the definitions produced by division is important to Aristotle not only as an end in itself, but also because at least some of those definitions will be among the first principles of demonstrative science. Thus the correctness of definitions will be the guarantor of the certainty of the conclusions of demonstrative science, and so the rules for natural division proposed by Aristotle are intended to support his claims for the adequacy of the first principles that are definitions. Given the conditions on first principles established by Aristotle in the *Posterior Analytics*, it is evident that not every definition formulated by division will function as a first principle. The question I want to address in this chapter is then, what distinguishes the definitions that can function as first principles from other kinds of definition? I will be arguing that Aristotle's answer is that it is the object of definition, and in particular its relation to its formal and efficient cause, that distinguishes the kind of definition that can function as a first principle from the kinds that cannot. To identify the features of immediate definitions that allow them to function as first principles is to begin to understand Aristotle's solution to one of the problems I identified at the end of Chapter One, the problem of the certainty of definitions and their adequacy to serve as first principles.

Division as a procedure for arriving at definitions does not discriminate among objects of definition; any object that can be classified by genus and differentia can be defined by means of division. But Aristotle does distinguish among objects of definition and does designate different kinds of definition as appropriate for different objects. That is, the differences among objects susceptible to definition determine certain differences in the structure and function of the definitions them-

selves. So definitions produced by division do not all have the same logical status for Aristotle, because the relation between the genus and the differentia(e) in a definition is not always the same. The theory of definition Aristotle provides must then be adequate to different kinds of entity. Among the different kinds of definable object and of definition, Aristotle privileges one kind of object (the kind he calls simple) and one kind of definition (the kind I call immediate), on the grounds that they are fundamental to the other kinds of object and definition. When I say that he privileges one kind of object and the corresponding kind of definition, I mean that he treats them as primary in importance. This privileging is manifested both in the *Posterior Analytics*, when immediate definition is the kind of definition that can function as a first principle of demonstrative science, and in the *Metaphysics*, when it is again immediate definition that is the kind of definition that will reveal to us what essence is.

What I call immediate definition is the fourth in the list of types of definition Aristotle presents in the *Posterior Analytics* 2.10. That list is: 1) an account (λόγος) of what a word (or some other account in words) signifies, 2) an account in the form of a demonstration, which differs from demonstration only in “aspect” (πρώσει at 94a12 and θέσει at 94a2), i.e. in the arrangement of its parts, and which makes clear *why* a thing is (in what follows I call this syllogistic definition), 3) the conclusion of such a demonstration, and 4) an indemonstrable account of what a thing is (I call this immediate definition). This list is not presented as a list of alternate methods of definition that are interchangeable. The different types of definition are to be distinguished according to the sort of object each defines, and according to the role each plays in demonstrative science. To make sense of the list, then, and thus to see how definition can play a part in demonstration, we have to ascertain how many discrete types of definition are included in the list according to their objects and functions.¹ Immediate definition (type [4]), which I will claim is most important philosophically to Aristotle, must be understood in contrast to the other three types.

In the discussion of definition in the *Posterior Analytics* Aristotle’s primary concern seems to be to distinguish definition from demonstra-

¹ Several different attempts to reduce this list to three are considered in Section II below. Some argue that (2), (3) and (4) are all types that fall under type (1) as under a general category; some that (1) and (4) are the same; and some that (1) and (3) are the same.

tion. We can understand this preoccupation in light of Aristotle's criticisms of those practioners of the method of division who seemed to him to treat it as a method of proof or demonstration (we have seen this in Chapter One). But even while insisting on the differences between demonstration and definition, Aristotle introduces an important similarity: both demonstration and definition, properly speaking, have to include causes. While none of what he says in the *Analytics* contradicts the account of definition in the *Topics*, we find in the *Analytics* this added element in the account—the requirement that definition should state the cause of the object of definition. My aim in this chapter and the next is to show how a certain kind of definition—again, immediate definition—is causal in such a way that immediate definitions can be the first principles of demonstration, i.e. is causal in such a way that definitions of this kind have sufficient certainty to ground demonstration. Later, in Chapter Four, I want to show that it is precisely because immediate definitions are causal in this way that when Aristotle comes to discuss definition in the *Metaphysics*, it is immediate definition that concerns him.

The work of distinguishing definition from demonstration is largely a question of distinguishing different types of definition, and showing that, while some of the types are directly related to demonstration (by being first principles of demonstration, or being displayed in demonstrations) none of them are identical with demonstration. In the course of distinguishing the different types, Aristotle tells us what is characteristic of a well-formed and complete definition. To realize the aim of elaborating the causality of immediate definition I have to consider how Aristotle presents the distinctions among definitions, and what those distinctions suggest about the role of definition in demonstrative science.

There are three distinctions that Aristotle appeals to, I will argue, in distinguishing two basic kinds of object for definition. The first of these is (i) a distinction between items that are other than their *aitia* and items that are the same as their *aitia*.² Aristotle draws this distinction at *Posterior Analytics* 2.8 93a3–6, and again at 2.9 93b21. I take it to be impor-

² The expressions “items which are other than their *aitia*” and “items that are the same as their *aitia*” are both ambiguous and awkward. The ambiguity is purposeful. The awkwardness is not so much purposeful as unavoidable. I want for the moment to leave open the question whether the items that are objects of definition are linguistic or non-linguistic.

tant in understanding the list of types of definitions in 2.10, because it maps onto two other distinctions: (ii) the distinction between definitions which can, and those which cannot, be displayed in a demonstration (Aristotle will also describe this distinction as one between items which answer the question, “why?” and those which answer the question, “what is it?”); and (iii) the distinction between items which are simple and those which are complex. My contention is that one type of definition can be displayed by means of a demonstration, answers the question, “why?”, and defines objects which are complex and have a cause other than themselves; and another type of definition cannot be displayed in a demonstration, answers the question “what is it?” and has as its objects items which are simple and do not have causes other than themselves.³

I will argue, then, that Aristotle intends the distinction of 2.8 and 2.9, between those things which do and those which do not have a cause other than themselves, not as a distinction between items altogether *without aitia*, on the one hand, and items *with aitia*, on the other, but rather as a distinction between two sorts of item *with aitia*. One way in which this distinction manifests itself is that in one case the *aition* in question can be displayed as the middle term of a demonstrative syllogism, and in the other it can be represented only as the predicate of a certain kind of syllogistic proposition. I understand the distinction to be between complex items (thunder and eclipses are among Aristotle’s examples) and their *aitia* on the one hand, and, on the other, simple items (people, celestial bodies) and their *aitia*. Of course, I will have to spell out how Aristotle understands complex items to be complex, and simple items to be simple.

My general strategy will be as follows. Section I examines the connections among the three distinctions: between items which have something else as their *aition* and items which do not, between simple and complex items, and between definitions that answer the question, “why?” and those that answer the question “what is it?” (the former can be displayed in a demonstration, the latter cannot). I begin by asking what the object of type (2) definition is. I want to show that the distinction between items that have something else as their *aition*, and those that do not, concerns the relation of an item to its *aition* and

³ This is not to say, I will argue, that items which are the same as their *aitia* cannot be accounted for or explained in some other way.

the ways in which that *aition* can be expressed in a definition. In order to do this, I will argue that Aristotle identifies items that have something else as their *aition* with items which are complex (ἐπὶ μέρους) and which answer the question, “why?” (διότι). Moreover, I will argue that this kind of object is distinguished by Aristotle from objects that do not have something else as a cause, which are simple, and which answer the question, “what is it?” This will establish the two basic kinds of objects of definition and two kinds of definitions.

In Section II I establish the connection between complex items and syllogistic definitions. I will be concerned, first, to show that those things which do not have an *aition* distinct from themselves do nonetheless have an *aition*, and then to show that the distinction between those things that do and those that do not have an *aition* distinct from themselves is not a distinction between substances and events, or a distinction between simple and complex terms, but rather a distinction between simple and complex items (items not limited to terms), in a particular sense of simplicity and complexity, to be specified.

I then establish, in Section III, that the sort of item that is simple, cannot be displayed in a demonstration, and does not have a cause other than itself is the object of a particular type of definition, immediate definition (type [4] in the list in *An. Po.* 2.10). I will consider the difference between definitions that are complete statements of the cause of their objects, and definitions that are incomplete statements of that cause, and hence preliminary to the definitions which are complete. The result will be to identify type (4) or immediate definitions as appropriate for the definition of the objects that are simple.

Most basically, we can learn from the *Posterior Analytics* how Aristotle thought different types of definition should be structured, and which type of definition will be appropriate to each type of definable object. We know that only certain items are demonstrable. Similarly, only certain items will have definitions that can be displayed in demonstrations, while others will be strictly indemonstrable, and hence suitable as first premises for demonstrations. From the discussion of definition in the *Posterior Analytics* we can learn, then, something about first principles. And it is the objects of the definitions that are first principles that are, I will argue, of primary importance to Aristotle in the *Metaphysics*. More than this, the claims of the *Posterior Analytics* about definition can help us to make sense of Aristotle’s discussions of definition in the *Metaphysics* and in the *Topics*. In particular, we can look to the discussion of the types of definition for some illumination of Aristotle’s hopes of avoiding

arbitrary divisions, since the more clearly specified the structure and content of an adequate definition, the easier it will be to see the sorts of divisions one must look for, and those one must avoid.

I. *Two objects of definition*

In this section I aim to show that Aristotle identifies the object of one type of definition as something simple that does not have an *aition* other than itself, and identifies the object of another type of definition as something complex which does have an *aition* other than itself. I do this by setting out the connections between three distinctions Aristotle draws: (i) a distinction between items which are simple and those which are complex, (ii) a distinction between items which do not have an *aition* other than themselves, and those which do have an *aition* other than themselves, and (iii) a distinction between definitions which can, and those which cannot, be displayed in syllogisms, according to whether they answer the question διότι or τί ἐστίν. These connections establish that Aristotle believes that the simple items of distinction (i) do not have *aitia* other than themselves and are defined in such a way that their definitions cannot be displayed in syllogisms. In section II below I examine the distinction between items that are complex and those that are simple in light of the distinction between items that do and those that do not have an *aition* distinct from themselves. In Section III I then go on to argue that these simple items are the definienda of immediate (type [4]) definition. This chapter then establishes that one particular type of object requires a particular type of definition, and that that type of definition is the type Aristotle believes will be among the first principles of demonstrative science. In the next chapter I will examine in more detail the distinction between items with *aitia* other than themselves and items which do not have such *aitia*, in order to understand better why the simple items that are the object of immediate definition are the objects the definitions of which can ground demonstrative science.

The distinction between two different kinds of object for definition—one simple and one complex—has to be understood in light of the questions which Aristotle distinguishes in 2.1 of the *Posterior Analytics*. These are: 1) the that—τὸ ὅτι, 2) if it is—εἰ ἔστι, 3) the why—τὸ διότι and 4) what is it?—τί ἐστίν. The distinctions among these questions underlie many of the distinctions that Aristotle introduces in elabo-

rating the different kinds of definition. In particular, the distinction between asking why something is and asking what something is proves to be very important for understanding the fundamental difference between the objects of syllogistic definitions and the objects of immediate definitions. Moreover, Aristotle's claim that we cannot ask the third or fourth question (why something is or what it is) until we have a positive answer to the first or second questions depends on his understanding of the nature of the first two questions. We need then to begin the inquiry into the four kinds of definition by examining these four questions.⁴

The first two of these questions are concerned with whether there is something to be investigated, the latter two with the *aition* of a state of affairs or of an object.⁵ Aristotle's example of the sort of thing of which one might ask διότι is an eclipse of the sun; examples of the sort of thing of which one might ask τί ἐστίν are god or person.

Aristotle goes on to say that τὸ τί ἐστίν and τὸ διότι questions are in fact the same question since, "... what something is (τὸ τί ἐστίν) and on account of what something is (διὰ τί ἐστίν) are the same," (90a14–15).⁶

⁴ Mansfeld points out that "... the four types of question are divided into subsets of two questions each, and ... these must be applied to different kinds of topics ... later authors tend to put them on a par and to assume that in principle they are all equally applicable to whatever topic you may encounter ... Aristotle himself ... uses the types of inquiry in different ways in different contexts," J. Mansfeld, "*Physikai doxai* and *Problemata physika* from Aristotle to Aëtius (and Beyond)" in *Theophrastus: His Psychological, Doxographical and Scientific Writings*, W.W. Fortenbaugh and D. Gutas, eds., Rutgers Studies in the Classical Humanities, Vol. V (New Brunswick, N.J., 1992) 63–111, 71–72.

⁵ Goldin says, "By the inquiry into τὸ ὅτι, Aristotle has in mind that which investigates whether there holds some predication (that some subject S has predicated of it some predicate P). By the inquiry into the διότι he has in mind that which investigates why it is the case that such a predication holds (why S is P). The inquiry into εἰ ἐστίν is that which investigates whether some subject exists (whether it is the case that something is S). The inquiry into τί ἐστίν is that which investigates the essence of some subject (what it is to be S)," O. Goldin *Explaining an Eclipse: Aristotle's Posterior Analytics* 2. 1–10 (Ann Arbor: The University of Michigan Press, 1996), 17. This way of describing the questions, while clear, might imply that Aristotle is concerned exclusively with subjects and predications in the grammatical sense, and so with linguistic formulae; I do not think that can be right, so I do not adopt this categorization.

⁶ Charles claims that Aristotle does not in fact mean to say that the questions are the same. He says, "Aristotle ties together his answers to two questions. One is the definitional 'What is F?' question, the other an explanatory one ('What is required for F to exist as the kind of thing it is?'). More precisely, he argues that one cannot answer either of these questions without relying on material drawn from answering the other. Since the requirements for definition and explanation are mutually interdependent in

But the *objects* of τί ἔστιν and διότι questions are different, being in the one case those things about which one asks ὅτι and in the other case those things about which one asks εἰ ἔστι. Aristotle's examples here of ὅτι questions are: Is the sun eclipsed? Does the earth move? Of εἰ ἔστι questions: Are there centaurs? Is there a god? (These questions, of the form "Is there X?" are to be distinguished, he remarks, from questions like "Is X white?").⁷

My aim here is to distinguish the objects of immediate definition (type [4]) from the objects of syllogistic definition (type [2]); I think Aristotle begins to do this by proposing the distinction between the questions "why?" and "what is it?". To make this clear requires setting out some of Aristotle's claims about syllogistic definition. To begin with, I want to suggest that we should identify the answer to a "why?" (διότι) question with a syllogistic definition, for two reasons. First, Aristotle links what a syllogistic definition does with the sort of answer appropriate to the question "why?". All definitions answer either a διότι question or a τί ἔστι question (2.3 90b3–4: definition is of what a thing is (τί ἔστι); 90a14–15: *what* a thing is equivalent to *why* (διότι) it is). So these questions are equivalent in the sense that they ask for the same kind of answer under a different description, that is, "why?" or "what?".⁸ But

this way, what defines a kind must be the same thing as what is required for it to exist." (*Aristotle on Meaning and Essence*, 248–249). On this view, these questions are different not because they are addressed to different objects of definition, but because they ask for something different as answers. Goldin interprets the identification of the two questions at 2.2 90a14–15 as the claim that "the explanation of any proposition of the form S is P must in part rest on a member of that set of predicates that makes up the essence of S" (*Explaining an Eclipse*, 3).

⁷ Several passages in other works reiterate this distinction between the questions διότι and τί ἔστι. At *Metaphysics* 7.17 1041a10–15 Aristotle says that one always investigates τὸ διὰ τί in a case where one thing is said to belong to another, and not in a case where a thing is said simply to be itself, so that, for example, one asks διὰ τί a person is musical but not διὰ τί a person is a person. (Thunder is another examples offered in this passage of something about which one might ask διὰ τί). Moreover, as Fortenbaugh has pointed out, Aristotle's account of what emotions are in the *Topics* and the *Rhetoric* refers to the inclusion of the efficient *aition* in the definition as something different from the emotion but through which (διὰ) the emotion comes to be (*Top.* 151a16–19, 156a32–33; *Rhet.* 1378a30–32). See W.W. Fortenbaugh, *Aristotle on Emotion* (London: Duckworth, 1975), 11–12.

⁸ Goldin suggests these questions might not be asking for the same kind of answer. He tries to understand the identification at 90a14–15 of the "why is it?" question with that asking "what is it?" by construing the "why is it?" question as asking "Why is the subject S a P?" and arguing that Aristotle expects us to answer either by identifying the essence of S (in that case διὰ τί would be asking about "partial being"), or by identifying the essence of P. (*Explaining an Eclipse*, 21–23).

Aristotle explicitly says of definitions of type (2) that they will make clear why (διὰ τί) something is (93b38–39), which is not something he will say of immediate definitions. Second, the evidence of examples is sufficient to show that Aristotle thought that answers to “why?” questions would render definitions of type (2): the example of an eclipse is used both in 2.1 to illustrate the response to a διότι question and in 2.8 to illustrate a definition of type (2).

We have established then that syllogistic definitions function as answers to the question “why?” What then of the objects of syllogistic definitions? There is sufficient evidence that Aristotle thinks the objects of syllogistic definition will be, in the first place, items with *aitia* other than themselves. Consider two passages that establish the difference between the sort of *aitia* found in immediate definitions (type [4]) and those found in syllogistic definitions (type [2]), at 2.8 93a3–6 and 2.9 93b21–28 (which is the whole of 2.9).

Since, as we said, to know what something is and to know the cause of the fact that it is are the same—the argument for this is that there is some cause and this is either the same thing or something else, and if it is something else it is either demonstrable or non-demonstrable—if, then, it is something else and it is possible to demonstrate it, it is necessary for the cause to be a middle term and to be proved in the first figure; for what is being proved is both universal and affirmative. (93a3–9)

Of some things there is something else that is their cause, of others there is not. Hence it is clear that in some cases what a thing is is immediate and a principle; and here one must suppose, or make apparent in some other way, both that they are and what they are (which the mathematician does; for he supposes both what the unit is and that it is); but in those cases which have a middle term and for which something else is causal of their substance, one can, as we said, make them clear through a demonstration, but not by demonstrating what they are. (93b20–28)

In the first of these passages Aristotle says (he offers this as an explanation for the first part of the sentence, in which he claims that it is the same to know what something is and to know the *aition* of whether it is) that there is some *aition* and that it is either the same or other (ἄλλο); if it is other, he adds, it is either demonstrable or indemonstrable.⁹ The

⁹ When Aristotle says that if an *aition* is other then it is either demonstrable or indemonstrable, he does not of course mean that it may be one, or it may be the other. He means that this class of *aitia* is such that the *aitia* it includes either can or cannot be demonstrated. He concludes at 93b18–19 that while they are not strictly demonstrable, they cannot be grasped without a demonstration.

same or other than what? Than that of which it is the *aition*, which he has just identified as the τί ἐστὶ. So the *aition* of what something is is either the same as, or other than, what that thing is. The first line of 2.9 reiterates this claim: the *aition* of some things is something else (ἕτερόν τι), of others it is not. Aristotle must mean, again, that in some cases the *aition* is something other than what the thing itself is, and in other cases it is the same as what the thing itself is.¹⁰

We can then make two claims about syllogistic definitions from Aristotle's remarks in 2.9–10: that they answer the question, διότι (why does item X have attribute A?) rather than τί ἐστὶν (what is item X?) from 93b38–94a2, and that they define things which have something else as an *aition* from 93b26–28. With this preliminary understanding of syllogistic definition and its object, we are better placed to understand immediate definition and its object. The contrast between these kinds of definition emerges most clearly with the distinction between complex and simple items.

I want now to use what Aristotle says about complex and simple items to connect the distinction drawn at 2.8 93a3–6 and 2.9 93b21 (mentioned above) between items which have something else as their *aition* and items which do not with the distinction between two kinds of definition, namely syllogistic and immediate definition. The way to do this is to consider again the distinctions among questions that open the *Posterior Analytics*. We have already established the identity of syllogistic definitions with answers to one of those questions, the question “why?”. Now, in 2.2 Aristotle connects the question, ὅτι, with items which are ἐπὶ μέρους, and the question, εἰ ἔστι, with items which are ἀπλῶς. To explain what he means by ὅτι ἔστιν ἐπὶ μέρους he offers two questions as examples: “Is the moon eclipsed?” and “Is the moon waxing?”. The questions he uses to illustrate an investigation into εἰ ἔστιν ἀπλῶς are: “Is there a moon?” and “Is there night?” (90a2–5). Aristotle distinguishes the *aition* of the fact that something is (τοῦ εἶναι) *simply* from the *aition* of something having some attribute, whether it has that attribute in-itself or accidentally (90a9–11).¹¹ To ask whether there is a

¹⁰ We will see in Chapter Three that in these contexts “other than” means “not identical with”, and does not imply that the *aition* is other in every respect from that of which it is the *aition*.

¹¹ In this passage Aristotle is explicit that these substance/attribute compounds might involve attributes which are either καθ' αὐτό or κατὰ συμβεβηκός. But in the examples he offers he restricts what is ἐπὶ μέρους to combinations of substance and καθ' αὐτό attributes (see below). That is, the instances of items that Aristotle refers to as ἐπὶ μέρους are in all cases combinations of substance and non-accidental attributes.

moon or night is to ask for the first sort of *aition*; to ask whether the moon is eclipsed or whether it grows is to ask for the second sort. To be ἐπὶ μέρους means, then, to be in some modified way, to be complex rather than simple.

At 90a12 Aristotle identifies τὸ ἀπλῶς with τὸ ὑποκείμενον (the moon, earth, sun, triangle are his examples), and opposes these to eclipse, equality or inequality, interposition. The examples of things with *aitia* distinct from themselves which he mentions later in 2.8 (eclipse and thunder) suggest that he has in mind the things ἐπὶ μέρους (including eclipse) of 2.2. If this is the case, those items which do not have *aitia* distinct from themselves correspond to items which are ἀπλῶς. And the recurrence of thunder as an example of a suitable subject for syllogistic definition in 2.10 makes clear that one asks a διότι question of something that is ἐπὶ μέρους and has a distinct *aition* and that one responds with a type (2) definition. Assuming the other term of each distinction corresponds, it will also be the case that one asks a τί ἐστι question of something which is ἀπλῶς and does not have a distinct *aition* and that one responds (I will argue) with an immediate definition.

It may seem problematic for these claims that 2.2 and 2.8 could be read as suggesting that one can display the *aitia* of either ἐπὶ μέρους or ἀπλῶς items as middle terms in a syllogism.¹² There is some evidence for this reading: Aristotle in fact says at 89b37–90a1, “We investigate, whenever we investigate the fact of the matter or whether something is simply, whether there is a middle term for it, or not.” Again, at 90a5–6, “In all these investigations it turns out that we are inquiring either if there is a middle or what the middle is.” And finally, at 93a9–13, “One way [of proving something] is the way just now examined, to prove what something is through something else. In the case of what something is, it is necessary that the middle be what that thing is, in the case of properties that it be a property. So that of the essences in the same thing, you will prove one, but not the other.”¹³

I think that Aristotle believes all ἐπὶ μέρους items which are objects of definition must be combinations of substance and non-accidental attributes. There may, of course, be items that are not definable, precisely because they are combinations of substance and accident. In Chapter Four I discuss Aristotle’s reasons for excluding substance-accident compounds from among the objects of definition.

¹² Goldin (*Explaining an Eclipse*, 25), Barnes (195), and Ross (612) all recognize this as a problem. Goldin argues that “... the middle term that is sought when one inquires about the cause of the existence of the essence of a substantial kind will be the final cause of that kind, which cause is the same as that essence itself,” (34).

¹³ In this paragraph the translations are my own.

Two considerations account for these remarks. First, Aristotle does repeatedly say that *what* something is and *why* something is are the same, and hence he does not always distinguish the questions in the explicit way he does in 2.1. Because of this, Aristotle does sometimes ask *what* something ἐπὶ μέρους is: he speaks of the *aition* of the fact of the matter as what that fact is rather than why it is. Second, what is crucial is that in these cases why the fact is will be something other than the fact itself, and because it is other in the appropriate sense, this “why” will be able to act as a middle term. This is the reason that Aristotle appears in 2.2 to be collapsing the distinction drawn in 2.1. It is true that the *aition* of both what is ἐπὶ μέρους and what is ἅπλῳς (and so, ultimately, the definitions of items which do not have something other as an *aition* as well as those which do) are middle terms. But only the *aitia* of ἐπὶ μέρους items are *aitia* as middle terms. That is to say, just because definitions of a certain sort are a kind of basic truth, and so act as premises of demonstrations, their predicates, which are their *aitia*, can be the middle term of some demonstration. But these predicates are *aitia* with respect to their subjects (which will be ἅπλῳς) in their function as predicates, and *not* in their function as middle terms in syllogisms (in that capacity they are of course the *aitia* of the conclusions of those syllogisms). That is, the *aitia* of items that are ἅπλῳς answer the question εἰ ἔστι, and if they also answer the question διότι, it is a question posed about a different object, namely the object that is the conjunction of subject and predicate in the conclusion of a syllogism.¹⁴

What we have established thus far is then a correspondence between the terms of three distinctions, such that what answers the question “why?” will be a syllogistic definition the object of which is complex and has an *aition* other than itself, and such that what answers the question, “what is it?” will be an immediate definition the object of which is simple and does not have an *aition* other than itself. I have said that I do not take what does not have an *aition* other than itself to be something without an *aition*; in the next section I argue for that claim. If we can understand what it is not to have something else as an

¹⁴ Another way of accounting for those passages in which Aristotle says that the *aitia* of ἅπλῳς items can be displayed as the middle terms in a syllogism is to say simply that the early chapters of the second book are aporetic, and hence that Aristotle is not necessarily committed to anything he says there. I am loathe to take this line of interpretation, since, while it seems clear that Aristotle raises many difficulties in these early chapters, it is not clear that he is uncommitted to everything he says.

aition, we can understand better how Aristotle conceives of the object of immediate definition, and hence why he believes that immediate definitions have the certainty necessary to function as first principles of demonstrative science.

II. *What is it to have something else as an aition?*

The questions I turn to now are then: What sort of item has something else as an *aition*? What sort of item does not have something else as an *aition*? By beginning with the first question, and thus clarifying the nature of the object of syllogistic definition, I hope to make the nature of the object of immediate definition, which does not have something else as a cause, clearer by contrast.

Something that has an *aition* distinct from itself must be the sort of thing of which one could ask διότι. We know that this question asks for the *aition* of something ἐπὶ μέρος, which is to say of some item modified in some way (a complex item), and hence of the connection between some item and some other. It is not clear whether the connection in question is that which holds between a subject and an attribute or between a state of affairs or an event and its *aition*. The examples of 2.8 and 2.10 (thunder and eclipses) might suggest that Aristotle had in mind the latter, where it is an event that has an *aition*. It is possible, however, to analyze the same examples in terms of subjects and attributes.¹⁵ And Aristotle's remark at 90a9–11 that things that are not simple are qualified by some feature either proper or accidental, together with the examples of equality/inequality and interposition, suggest that he had in mind subjects and attributes in combination. Certainly he does not speak of events as such. For these reasons I am inclined to agree with those who think he understood events as complexes of substances and attributes. That is, whatever holds of substance/attribute combinations will hold of events for Aristotle.

¹⁵ Opinions vary on this question. T.H. Irwin argues that all substance-attribute relations can be reduced to events (*Aristotle's First Principles* [Oxford: Clarendon, 1988], 56). Moravcsik, on the other hand, thinks that events are reducible to substance-attribute relations ("What Makes Reality Intelligible? Reflections on Aristotle's Theory of Aitia," in *Aristotle's Physics: A Collection of Essays*, ed. Lindsay Judson [Oxford: Clarendon, 1991], 31–47). J. Annas takes a somewhat different position, namely that events involve substances ("Aristotle on Inefficient Causes," *Philosophical Quarterly* 32 [1982]: 311–326, 321).

At any rate, in defining such an item (one which involves a connection) one answers a διότι question by constructing a kind of demonstration so that the definition is displayed in the demonstration rather than demonstrated—displayed rather than demonstrated because the definition is not simply the conclusion of the demonstration (although the conclusion can stand in for the definition) but the conclusion plus the middle term. Aristotle says that such definitions are different from demonstrations in their “aspect” or “position”. What he means is that if we re-arrange the parts of the demonstration, attaching the middle term to the conclusion, we arrive at the definition. So, a demonstration that “Thunder is a noise in clouds” through the middle term “quenching of fire in clouds”, becomes the definition, “Thunder is a noise in clouds produced by the quenching of fire in clouds” by a re-arrangement of some of the parts of the demonstration.¹⁶

This much is evident, then: the distinction Aristotle draws between items which have something else as their *aition* and items which do not corresponds to the distinction between those definitions which can be displayed in a kind of demonstration and those definitions which cannot. Moreover, both of these distinctions imply a parallel distinction in the objects of the two different types of definition. But there is controversy as to what exactly the items that have something else as their *aition*, and those which do not, *are*. In particular, we need to ask whether those that do not have something else as their *aition* have any *aition* at all.

First of all, the textual evidence. The passage at 93a3–6, already cited, says, not only that there is an *aition* but also that it is either the same as or other than (τὸ αὐτὸ ἢ ἄλλο) that of which it is the *aition*. So, unlike the later passage (93b21) in which Aristotle makes this distinction, this passage *cannot* be read as saying that some things have an *aition* that is other than them while other things have no *aition* at all. This same passage makes clear that there is an *aition* of the εἰ ἔστι, and not only of the ὅτι. If we agree that the object of εἰ ἔστι and τί ἔστι questions are what is ἀπλῶς, then this passage claims explicitly that even what is simple has an *aition*. This seems to me to be adequate textual evidence for the claim that we ought to understand Aristotle to be saying that some things have something else as their *aition* and some

¹⁶ See David Demoss and Daniel Devereux, “Essence, Existence, and Nominal Definition in Aristotle’s *Posterior Analytics* II 8–10,” *Phronesis* 33, no. 2 (1988): 136–152.

things are the same as their *aition*, rather than to be saying that some things do and others do not have an *aition*.

Second, the philosophical evidence: another reason to think that those items which do not have something else as *aitia* nonetheless do have *aitia* is that, were this not true, Aristotle would have to be understood as positing items with no form. A form is one kind of *aition*; something that had no *aition* could have no form. In the next chapter I will elaborate this argument, which requires discussion of the ambiguity of the notion of an *aition*, and some consideration of the role of *aitia* in demonstration.¹⁷

Having established that the distinction between items with an *aition* distinct from themselves and those without such *aitia* is a distinction between two kinds of object each of which has an *aition*, we need now to make clear in what sense those items which do not have *aitia* other than themselves can have *aitia*. I am going to argue that Aristotle intends the distinction to be one between simple and complex items, whether linguistic or non-linguistic. To do this, I have to consider first some alternative interpretations of the distinction, interpretations that take the distinction to be one between substances and events, or simple and complex terms.

Ross, in his commentary on the *Prior* and *Posterior Analytics* follows the ancient commentators in saying, "This is no doubt a reference to the distinction between substance, on the one hand, and properties and events on the other. A substance is the cause of its own being, and there is no room for demonstration here; you just apprehend its nature directly or fail to do so (93b21–25, 94a9–10). But a property or an event has an *aition* other than itself."¹⁸ The evaluation of Ross's interpretation of the distinction depends on how the term "substance" (οὐσία) is used

¹⁷ Goldin also argues that those things that do not have an *aition* other than themselves do nonetheless have an *aition*. He maintains "that Aristotle's phrase, 'that of which there is no other cause' at *Posterior Analytics* 2.9 93b21 refers to those kinds whose members are not considered by the science studying them as inherent in anything more basic." (*Explaining an Eclipse*, 36).

¹⁸ W.D. Ross, *Aristotle's Prior and Posterior Analytics*, 629. Ross seems to concur with Leblond's interpretation. Leblond claimed that Aristotle's definitions were all analyses of one of three types: matter/form, cause/effect or genus/species. "... the definition that is articulated according to cause and effect applies properly to an act, an event, and not to a substance; the definition according to matter and form is properly about substance, and since definition properly speaking is appropriate only for substance, it is the form par excellence of definition; it manifests the internal reason, not the motor cause." J.M. Leblond, "La définition chez Aristote," *Gregorianum* 20 (1939): 363.

in the *Posterior Analytics*. Is it contrasted with properties and events? I argue below that it is not.

Barnes claims that the distinction between items that have something else as their *aition* and those that do not is not a distinction between substances and properties, but one between the primitive terms of any science and the derived terms. This distinction between primitive and derived terms in Aristotle was first made by Scholz, who claimed that when Aristotle talks about the ἀρχαί of a science he had in mind not only axioms, i.e. primitive sentences, but also primitive terms, by which Scholz meant terms that are immediately intelligible and adequate for constructing derived terms.

As evidence for this, Scholz cites three passages.¹⁹ *Posterior Analytics* 2.9 93b21 ff. is one of the passages in which Aristotle distinguishes explicitly between items that have *aitia* distinct from themselves and those which do not: “Of some things there is something else that is their *aition*, of others there is not. Hence it is plain that in some cases what something is is immediate and a principle; and here one must suppose (ὑποθέσθαι), or make clear in some other way, both that the thing exists and what it is. (Arithmeticians do this: they suppose both what a unit is and that there are units.)” Similarly at 1.10 76a31 ff. Aristotle claims that an ἀρχή is something neither the being nor the nature of which can be proved, and cites as examples the unit and magnitude. According to Barnes, Aristotle offers “unit” as an example of what he calls a “self-explanatory item” because one cannot analyze it in other terms; “man”, on the other hand, he takes to be “non-self-explanatory”, since one can analyze it as, say, “featherless biped”.²⁰ This means that if one takes the distinction between items that have something else as their *aition* and those which do not as a distinction between primitive and derived terms, primitive terms will be those that cannot be analyzed further in the sense that they cannot be defined and no account can be given of them. But these passages do not exclude the possibility of defining the items that do not have *aitia* other than themselves; they exclude the possibility of *proving* such definitions. There is no reason to think that ὑποθέσθαι excludes giving some kind of account, even a definition; indeed, Aristotle explicitly says that one must *either* suppose *or* make apparent in some other way. What is clearly ruled out by

¹⁹ H. Scholz, “The Ancient Axiomatic Theory” in *Articles on Aristotle*, Vol. 3, ed. J. Barnes, R. Sorabji and M. Schofield (London: Duckworth, 1979), 60–61.

²⁰ J. Barnes, *Aristotle's Posterior Analytics*, 1994, 221–222.

Aristotle is a demonstrable account. We might, for example, be able to say what a unit is, but not to demonstrate it, only to suppose it, just as we cannot demonstrate that people are featherless bipeds.

The third passage that is said to support a distinction between primitive and derived terms is at 8.14 163b20ff. in the *Topics*. Aristotle encourages the dialectician to have at hand definitions or terms that are both widely accepted and primary (ὄρων ... τῶν ἐνδόξων τε καὶ τῶν πρώτων), "... for it is through these that deductions (συλλογισμοί) are effected." This passage is inconclusive evidence that Aristotle distinguished between primitive and derivative terms, since ὄρος means "definition" as well as "term", and it would make good sense in this context if Aristotle were using it to mean "definition", since συλλογισμοί are indeed effected through definitions.

What kind of evidence might we examine to resolve this debate and establish what Aristotle meant by the distinction between items that have something else as their *aition* and items that do not? Barnes points out that there is no evidence for the substance/property distinction in Aristotle's text.²¹ There is no evidence in the text in the sense that Aristotle does not say that the distinction is supposed to capture the difference between substances and properties. But in this sense there is no evidence in the text for *any* particular understanding of the distinction. Aristotle does not tell us directly what the terms of the distinction refer to. On the other hand, the text can give us the evidence of context: what is Aristotle concerned with when he draws the distinction?

I suggest that the evidence we ought to consider in determining what Aristotle meant by items which have something else as their *aition* and those which do not are the examples he offers us of ὅτι, διότι, εἰ ἔστι and τί ἔστι questions, of being ἐπὶ μέρος and being ἀπλῶς and of items which do not have something else as their *aition*, and the contexts in which these examples occur. I want to show that an examination of these examples will reveal that the distinction is one between simple and complex items, either linguistic or non-linguistic.²²

²¹ Barnes, 1994, 217. Notice that at 2.2 90a9–11 Aristotle does explicitly connect what is ἀπλῶς with οὐσία. I do not believe that Aristotle in this passage means to oppose substance to the other categories, but that something is simple insofar as considered with respect to its substance in the sense of essence; in this sense, even items in categories other than substance have substance or essence.

²² Aristotle's text offers no evidence that he distinguished strictly between definitions and their objects, between linguistic items and non-linguistic items. In fact, as we will

Having set out the connections between what is ἐπὶ μέρους, has something else as an *aition* and answers the question διότι, on the one hand, and between what is ἀπλῶς, does not have something else as an *aition* and answers the question τί ἐστὶ, on the other, I propose to draw up two lists of items. One list includes any item which Aristotle offers as an example of what is ἐπὶ μέρους, has something else as an *aition* or answers the question διότι; the other list includes any item which Aristotle offers as an example of what is ἀπλῶς, does not have something else as an *aition* or answers the question τί ἐστὶ.

In 2.1 the ὅτι/διότι pair of questions is applied to eclipse and earthquake; the εἰ ἔστι/τί ἐστὶ pair of questions is applied to god, centaur, and person.

In 2.2 the questions, “Is the moon waxing?”, “Is the moon eclipsed?”, “Are two things equal or unequal?”, “Is something interposed or not?”, “Does this figure have two right angles?”, “Is it greater or less?” are all said to be about things which are ἐπὶ μέρους. The questions, “Is there a moon?”, “Is there a sun?”, “Is there an earth?”, “Is there a triangle?”, “Is there night?” are said to be about things which are ἀπλῶς.

After drawing the distinction at 2.8 93a3–6 between items which are the same as their *aitia* and those which are not, Aristotle says that in coming to know that something is (thunder, eclipse, person, the soul) we sometimes first grasp something of the thing itself. But Aristotle offers us examples of definitions displayed in demonstrations only in the case of thunder and eclipse. Some confusion arises here, because the list of examples includes both some things that Aristotle would say are ἐπὶ μέρους (eclipse and thunder) and of which one would ask the question διότι, and some things that Aristotle would say are ἀπλῶς (person and soul) and of which one would ask the question τί ἐστὶ. This might seem to suggest that Aristotle is abandoning the distinction between ἐπὶ μέρους items of which one would ask the question διότι, and ἀπλῶς items of which one would ask the question τί ἐστὶ, particularly because the examples are only of items that are ἐπὶ μέρους, the definitions of which can be displayed in syllogisms. But I think this would be a mistaken inference. The confusion can be dispelled by paying attention to the context of Aristotle’s remarks in this passage. His point is that

see in Chapter Three, his insistence on a structural parallel between the essence of something and the definition of that thing suggests that he intended that the simple (ἀπλῶς) and complex (ἐπὶ μέρους) items should be understood to be either linguistic or non-linguistic. That is, his claims should hold for both.

one comes to know that something is only when one knows something of what it is (in all these cases, by grasping what genus it falls into).²³ It does not follow from this that one can set up a demonstration that will display the definition whenever one knows something about the thing in-itself. Demonstrations are appropriate only in cases where the definition can take the form, “X is Y because of Z”. That Aristotle discusses the sorts of demonstration one might set up to display the definitions of eclipse and thunder but not of person or soul suggests that he did not think person or soul could be defined in the same way as eclipse or thunder. A person is something and the soul is something, but they are not what they are in virtue of something else.

In 2.9 we find no examples of items which have something else as an *aition*, but an example of something which does *not* have something else as an *aition* is offered: the unit. If, then, we distinguish those items which Aristotle refers to as ἀπλῶς or as not having something else as an *aition*, or as those items of which one might ask τί ἐστὶ, from items which he refers to as ἐπὶ μέρους or as having something else as an *aition*, or as items of which one might ask διότι, we have two lists:

A	B
god	eclipse
centaur	earthquake
person	equality/inequality
moon	interposition/non-interposition
sun	having two right angles
earth	greater/lesser
triangle	thunder
night	
unit	
soul	
magnitude	

²³ Demoss and Devereux suggest that it is an “observable property” that one grasps when one grasps “something of the τί ἐστὶ” in a nominal definition, and that this is not equivalent to, nor even part of, what they call the “underlying cause”, (“Essence, Existence and Nominal Definition in Aristotle’s *Posterior Analytics* II 8–10”, 151). In order to make this claim they suggest that by 2.10 Aristotle’s understanding of the τί ἐστὶ includes both the cause and the observable property, which latter they consider not to be part of the cause. But, as I will argue, the cause of an item involves both the efficient cause (what Demoss and Devereux take to be “the underlying cause”) and the formal cause (part of which, the genus, is included in the nominal definitions that are preliminary to scientific definitions).

Column A lists ἀπλῶς items which do not have something else as their *aition*, of which one might ask the question τί ἐστὶ. Column B lists ἐπὶ μέρους items which have something else as their *aition* and of which one might ask διότι.

The items in each column do not represent any obvious class or kind. Column A includes several entities considered divine by Aristotle (god, moon, sun, earth), an animal (person), a form (soul), three mathematical items (triangle, magnitude and unit), a fictional creature (centaur), and a time of day (night; Ross was driven to call night a “quasi-substance” in order to accommodate it in his interpretation).²⁴ Column B includes three events and four properties.

If one claims that the columns distinguish substances (in the sense of the *Categories*) from properties and events, one will have difficulty accounting for those things in Column A that are *not* substances in this sense (centaur, night, magnitude). And if one claims that the distinction between those items which have something else as their *aition* and those which do not is a distinction between primitive (in the sense of indefinable) and derived terms one must take at least “person”, “triangle” and “soul” out of Column A, since we know that Aristotle thought these *were* definable. But to remove these items one would have to disprove the demonstrated links between that which is ἀπλῶς, that which does not have something else as an *aition*, and those items of which one might ask τί ἐστὶ.

What is common to items in Column A, and what distinguishes them from items in Column B is that, in each case, an account of what they are will not have to mention anything other than the item itself. That is to say, their definitions will simply be *descriptions* of their parts. The definitions of items in Column B, on the other hand, will have to mention something other than the item itself. The definition of thunder, for example, will mention the quenching of fire in clouds, although this is not, according to Aristotle, what thunder *is* strictly speaking, but

²⁴ In Hesiod's *Theogony* Night is one of the first born of Chaos, and is itself personified:

From Chaos came black Night and Erebus
And Night in turn gave birth to Day and Space
Whom she conceived in love to Erebus (trans. Wenders)

Without supposing that Aristotle had this passage in mind, one can see it as evidence that it would not have been peculiar for Aristotle to associate night with the sun and the moon as divine bodies.

rather what *produces* thunder. The definition of having two right angles will have to mention a figure, although the attribute of having two right angles is not itself a figure. The point is that everything in Column B involves a connection, typically the connection between a subject and some attribute; and that an account of one of the two terms of the connection will have to include mention of the other term. It is worth remarking that Column B includes no instance of a connection between a subject and an accidental attribute; this indicates that while some things that are ἐπὶ μέρους might be, as Aristotle tells us, modified by some accident, they are not the sort of item that interests Aristotle when he considers what sort of item will have an *aition* other than itself, and hence be such as to have a definition displayed in a demonstration.²⁵

Someone might object that definitions of items which do not have something else as their *aition*, like person and triangle, do in fact have to mention something other than the item in question, namely the genus to which that item belongs. Consider two examples: “A person is a biped animal” and “Thunder is a noise in clouds caused by quenching of fire.” The predicate is the definition of the subject in each of these sentences. If the structures of these two definitions were parallel, then, just as “biped” qualifies “animal” as a differentia of that genus, so too “caused by quenching of fire”, which qualifies “noise in clouds,” ought to be the differentia of that genus. And if this were the case, then no distinction could be drawn between these definitions on the basis of their identity or non-identity with the definiendum.²⁶

If, then, one takes the logical structure of these two kinds of definition to be the same, one cannot make sense of Aristotle’s claim that

²⁵ See also n. 11 above. The distinction between items in Columns A and B is like Aristotle’s distinction between two sorts of κατ’ αὐτά attributes: those that are essential to that to which they belong (which do not have something else as an *aition*) and those to which that to which they belong is essential (which do have something else as an *aition*) (73a34–38; 74b6–9). See Michael Ferejohn, *The Origins of Aristotelian Science* (New Haven: Yale University Press, 1991) for an extended discussion of the role of κατ’ αὐτά propositions in demonstrative science.

²⁶ One might well think that a person is *not identical* to animal, any more than thunder is identical to the quenching of fire. Aristotle does, however, say that a species (people) is just what its genus (animal) is at *Posterior Analytics* 1.22 83a28–30. And a noise in clouds caused by quenching of fire will be identical in just the same way with thunder. But Aristotle in claiming this identity between species and genus must be presuming the unity of the genus with its differentia (whether “biped” or “caused by quenching of fire”). This would mean that people would be identical not strictly with animal, but with animal qualified in a certain way, and similarly thunder would be identical not with a noise in clouds, but with such a noise qualified in a certain way.

in the one case the *aition* expressed in the definition is something other than the thing defined. Yet the view that definitions of items which have something else as their *aition* should be structured in a different way than definitions of those items which do *not* have a distinct *aition* could only have been suggested by the observation that certain things are not only indemonstrable but also such that they *cannot* be displayed in a demonstration. The logical form of the definition of items in Columns A and B is the same, in that the genus/differentia structure which Aristotle recommends as appropriate to items which do not have a distinct *aition* also works for items which have something else as their *aition*. In the case of the latter, the differentia will be the middle term of the demonstration and the genus the predicate of the conclusion. What *does* differentiate the definitions of items in the two columns is whether they are such that they can be displayed in demonstrations. In the next chapter, I will argue that this is because the causal relations that explain the object to be defined are quite different in the two cases.

The distinction between things that have something else as their *aition* and those that do not, as I have interpreted it, is not incompatible with a distinction between primitive and derived terms. It is incompatible with a conception of primitive terms as indefinable or unsusceptible to analysis, rather than simply indemonstrable (where a demonstrable term is one the connection of which to another term can be demonstrated). When Aristotle says that we must accept that there are units and what units are before beginning to produce the theorems of mathematics, he does not mean that we could not say anything to someone who did not know what a unit is, but only that we could not demonstrate what a unit is to that person. In other words, Aristotle's distinction between things which have something else as their *aition* and those which do not is not a distinction between terms which have *aitia* and those which do not, since one can give some account even of those terms which do not have something else as their *aition*. The distinction is rather between those terms the *aitia* of which are ἑτερόν τι (in the sense that middle terms in syllogisms are other than the terms of the conclusion), and those terms which have *aitia* that are predicated immediately of them. That is, it is a distinction between demonstrable and non-demonstrable terms.

What we know, then, of syllogistic (or type (2)) definitions is this: they account for an item that involves a connection between two things, rather than for simple items; they include an *aition* which is distinct in a special sense from that which is defined; and they are displayed in

demonstrations rather than in propositions or phrases.²⁷ I have been suggesting that, by contrast, immediate definitions account for simple items, that they have *aitia* which are not distinct from themselves, and that they cannot be displayed in demonstrations. In the next section, I will try to substantiate this set of claims by considering in more detail definitions of type (1) and (4).

²⁷ Ackrill suggests two models for Aristotle's type (2) definitions, based on the example of thunder in 2.10 of the *Posterior Analytics*. These two models are:

1. Thunder is quenching of fire in clouds.
 Quenching of fire in clouds is a noise in clouds.
 Thunder is a noise in clouds.
2. A noise is quenching of fire.
 Quenching of fire is (occurs) in clouds.
 A noise is (occurs) in clouds.

Akrill points out that each of these models could serve Aristotle's purposes equally well. Ackrill considers that the advantages of (1) are that it shows what the definition must be (i.e. the conclusion plus the middle term), and that it explicitly mentions thunder in the conclusion (making it more appropriate as a definition). The advantages of (2) (as against (1)) are that it proves the existence of thunder, and shows *why* thunder exists. But (1) does in fact show why thunder occurs: because there is quenching of fire in clouds. And it is not clear that the function of such demonstrations is to prove that something exists or occurs; indeed, Aristotle tells us that we cannot ask why something occurs or what it is unless we are already aware that it does occur/exist (93a16–29) (J.L. Ackrill, "Aristotle's Theory of Definition: Some Question on *Post An II* 8–10," in *Aristotle on Science*, ed. Enrico Berti [Padova: Antenore, 1981], 360.) Bayer, concerned with the "definition-manifesting demonstration" of 2. 8 93b16–18, proposes that we should understand such a demonstration "as involving a chain of *two* different types of syllogisms ... The first type of syllogism would perform the primary *explanatory* work of the demonstration ... A second type of syllogism would serve to *identify* the phenomenon by which the definiendum is first recognized by showing that the presence of this phenomenon entails the presence of the definiendum," (G. Bayer, "Definition through Demonstration: The Two Types of Syllogisms in *Posterior Analytics II.8*" *Phronesis* XL/3 (1995): 241–264, 241–242). Bayer (250–251) reconstructs the argument in the passage at 93a30–33 this way:

Syllogism I (the explanatory syllogism)

- (A) Eclipse belongs to (B) occultation by the earth.
- (B) Occultation by the earth belongs to (C) the moon.
- (A) Eclipse belongs to (C) the moon.

Syllogism II (the identifying syllogism)

- (A) Eclipse belongs to (B) the full moon's inability to cast shadows etc.
- (B) The inability to cast shadows etc. belongs to (C) the moon.
- (A) Eclipse belongs to (C) the moon.

On this view, while the two syllogisms have the same conclusion, the first shows the explanation and the second indicates how to identify the phenomenon to be explained.

III. *Simple objects and immediate definitions*

In Section II, I have argued that syllogistic definitions have as their objects complex items with *aitia* distinct from themselves; in this section I will argue that immediate definitions have as their objects simple items with *aitia* that are not distinct from themselves. In order to do this I want to consider the list of four types of definition in 2.10 in light of the contrast we have established between simple items and complex items. We have already seen that syllogistic definitions (type [2] definitions) have as their objects complex items with *aitia* other than themselves. And since the definitions that are the conclusions of the demonstrations in which syllogistic definitions are displayed have the same objects, type (3) definitions, which are just the conclusions of those demonstrations, must also have complex items as their objects. Definitions suitable for simple items must then be either type (1) definitions (usually called nominal definitions) or type (4) (which I call immediate definitions). I am going to argue that it is immediate definitions which, properly speaking, define simple items. At the same time, I want to make evident a parallel between the relation of type (3) to type (2) and type (1) to type (4): in both cases, I claim, the one type of definition serves as a preliminary to the other.

So far I have argued that Aristotle understands definition in general to be some account of what some item is, or of why it is, where these are taken as equivalent in the sense that both involve stating the *aition*. We have seen that Aristotle draws a distinction between items which have something else as their *aition* and those which do not, and evidence that the former are the objects of type (2) definition, and therefore, by implication, of type (3). The difference between types (2) and (3) is that (2) states the *aition* in its entirety (because it includes the middle term) whereas (3) does not (because it is the conclusion of a demonstration without the middle term). The question now is which type of definition listed in 2.10 is appropriate to these items the definitions of which cannot be demonstrated or displayed in a demonstration. If types (2) and (3) are excluded we are left with types (1) and (4), and it is type (4)

Bayer says, "It is clear that both the explanatory and identification tasks must be performed if the explanation is to explain, the definition to define," (242). While Bayer does not argue that this is what Aristotle intended, it is one way of understanding the difference between nominal definitions (that identify the definiendum) and causal definitions of the sort I call syllogistic.

or immediate definition which, I have suggested, will be appropriate to items which do not have something else as an *aition*.

We know that at least some of the items that fall into Column A are susceptible to definitions in the form of propositions (e.g. A person is a biped animal) that cannot be demonstrated or displayed in demonstrations because there is nothing other that acts as the *aition* of the connection between subject and attribute (2.4 91a25–32). The way to display such definitions, as well as the way to arrive at such definitions, is not to set up a demonstration but rather to use the process of division (διαίρεσις) which Aristotle advocates in the *Topics*, and which he emphatically distinguishes from demonstration at *Posterior Analytics* 2.5.²⁸ Type (4) is, on the face of it, the most likely type of definition appropriate to those items which cannot be demonstrated or displayed in demonstrations, because Aristotle calls it an indemonstrable account; but then type (1), an account of what a word means, might also be indemonstrable.

We have, then, a broad division between types (2) and (3) which are concerned with items which have something else as their *aitia* on the one hand, and types (1) and (4), at least one of which must be concerned with items which do not have something else as their *aitia*, on the other hand. But we need still to distinguish type (1) and type (4). I want to argue both that type (1) is a genuine form of definition, and that it is distinct from the other three types. My contention is that type (1) is in fact a preliminary form of type (4), just as type (3) is preliminary to type (2). That is, on my view, in order to formulate an immediate definition one must begin with a nominal definition. To make this argument, I have first to justify the claim that type (1) is a genuine type, by arguing against the view that it is not. The view that it is not is motivated by the observation that type (1) seems to be missing from the summary of types of definition at the end of 2.10.

There are two common explanations for the apparent absence of type (1) definition from the summary at the end of 2.10, both of which involve dismissing type (1). One such explanation is that type (1) definition is not considered by Aristotle to be a genuine type. Some commentators who claim that Aristotle altogether excludes type (1) defini-

²⁸ I see no reason why one could not arrive at definitions of type (2) through the same process, although one might not only display such a definition in a quasi-demonstration, but also arrive at it (discover it) through that quasi-demonstration. My point is that one could not possibly arrive at certain definitions (those which do not have something else as their *aition*) *except* through the process of division.

tion from his final list in 2.10 argue that it is nominal definition, that nominal definition is not genuine definition, and that Aristotle therefore leaves it aside.²⁹ The evidence for the claim that Aristotle does not think nominal definitions are genuine definitions presumably comes from 2.7; but this, as we will see below, is insufficient to show that Aristotle thought no nominal definition was a genuine definition. A second explanation for the absence of type (1) from the summary of 2.10 is that it is not a separate type of definition at all, but rather an over-arching type that includes all three others. One might think that type (1) is not in fact a separate kind of definition, since *all* definitions tell us what a name signifies. On this view, the distinction drawn in 2.10 is between three kinds of definition, some of which tell us what a name signifies merely by giving us some expression which means the same as the name in question, while others actually tell us something which holds καὶ αὐτό of the thing signified by the name. This is a plausible suggestion, except that the text makes clear that Aristotle wants to distinguish the first as a distinct *type* of definition. At 93b38–39 Aristotle would not say “εἷς μὲν ... ἄλλος δὲ” unless he meant to distinguish different types. This phrase cannot possibly mean that the second is a subset of the first, and so the first cannot be intended as a general account of all definitions.

I take it, then, that type (1) or nominal definition is a genuine type. The question now is, just how does Aristotle conceive of the relation between nominal definitions and the other three types? In particular, how does he distinguish nominal definition from immediate definition, if both take as their objects the simple items without *aitia* other than themselves?

i. *Type (1) or nominal definition*

To answer these questions let us consider the passage in which Aristotle describes nominal definition:

Since a definition is said to be an account of what something is, it is clear that one type will be an account of what its name, or some other name-like account means, for example, what triangle means. When we grasp that this exists, we seek why it is (διὰ τί ἔστι). But it is difficult to take anything in this way if we do not know that it exists. The cause of

²⁹ Philoponus, *In Aristotelis Analytica Posteriora Commentaria*, C.A.G., ed. M. Wallies, vol. 13, no. 3 (Berlin, 1909), 370 23–24, 374 31–33, 375 2–4.

the difficulty was given earlier: we do not even know whether it exists or not, except incidentally. An account is one in two ways: by connection, like the *Iliad*; and by showing one thing of one thing, non-incidentally. (*Posterior Analytics* 2.10 93b29–37)

Although, as I have just pointed out, Aristotle clearly intends to distinguish the kind of definition mentioned in the first sentence of this passage from other kinds, we should notice that it will generally be true of any definition that it will be an account of what a name means. This first kind must then be distinguished from the others with respect to what it lacks; since all definitions will say what a name means, if this first is not simply a general rubric for all definitions, it will be because other kinds of definition do something in addition to saying what a name means.

The first sentence implies that a nominal definition, simply in virtue of being a kind of definition, will be some account of what a thing is. Moreover, in the sentence that follows Aristotle goes on to say that once we grasp that, for example, there are triangles, we go on to ask why. This suggests that having a nominal definition and grasping that the item it defines exists, are somehow connected.³⁰ As Demoss and Devereux point out, “Thus when Aristotle says, immediately after his characterization of nominal definitions, that when we grasp something’s existence we go on to seek its cause, he is suggesting that this type of definition is somehow involved in answering the first question. We find the same suggestion in the following passage in chapter 8.

For it is impossible to know what something is if we are unaware of whether it is. Sometimes we grasp that something is incidentally (κατὰ συμβεβηκός), and sometimes by grasping something of the thing itself—e.g. that thunder is a certain noise in the clouds, that eclipse is a certain privation of light, ... In those cases where we grasp that something is incidentally, we are in no position to carry out an inquiry into what it is; for we don’t *know* that it is. It is futile to search for something if we don’t grasp that it is. Insofar as we grasp something [of the thing itself] it is easy. As we stand in relation to the question whether something is, so do we stand in relation to the question what it is. Let the following serve as an example of those cases in which we grasp something of what the thing is.”³¹

This passage makes clear that knowing that something exists involves knowing something of what that thing is. So that if nominal definitions

³⁰ Demoss and Devereux, “Essence, Existence, and Nominal Definition in Aristotle’s *Posterior Analytics* II 8–10,” 134.

³¹ Demoss and Devereux, 135.

say something of *what* the definiendum is, we can expect that they will also give us the knowledge *that* something is.³²

Despite this evidence that Aristotle thought that a nominal definition should say something of what a thing is, and that a nominal definition is somehow involved in establishing that the object of definition exists, there are several passages that tell against such interpretations. I discuss these passages below. My conclusion will be that these passages indicate that the nominal definitions of 2.10 do not *assume* or *state* that the object of definition exists, but that nominal definitions do nonetheless give us some knowledge of the existence of that object. This is important because it explains the purpose of nominal definitions relative to syllogistic and immediate definitions: they provide knowledge adequate to identifying instances of the object of definition.

I turn now to the passages that suggest that nominal definitions do not establish the existence of the object that they define. In 2.7 Aristotle mentions two problems with definitions which say what a word means, which he suggests indicate the need for some other kind of definition. At 92b26–32 he says, “If then someone in the process of defining proves either what something is or what a word means, and there is no proof of what it is, then definition would be an account meaning the same as a word. But that would be strange. First, there will be definitions both of non-beings [Demoss and Devereux, citing Ross, take these to be non-essences] and of what is not (καὶ μὴ οὐσιῶν ... καὶ τῶν μὴ ὄντων). For it is possible to signify what is not, too. Moreover, all accounts would be definitions. For you can posit a name for any account at all, so that we might all set out definitions, and the *Iliad* would be a definition.” Here Aristotle says that it is possible to say what a word that refers to what-is-not means, and suggests that that is problematic; we need to set constraints on accounts of the meaning of words such that accounts of words that signify what is will be distinguishable from accounts of words that signify what is not. He also suggests that an account of what a word means need in general have no particular structure at all, since we can always posit a name for any account whatsoever (thus the text of the *Iliad* would be

³² This, of course, is a version of the problem of the *Meno*: in order to know what something is, we must first know that it is; but how can we know that it is if we do not already know something at least of what it is? Because Barnes thinks the examples at 93a22–24 are not examples of nominal definitions, he disagrees that nominal definitions will say something of what the definiendum is.

a definition of the *Iliad*).³³ (The *Iliad* comes up again at 2.10 93b35–37, where Aristotle says that an account is one in two ways: by connection, like the *Iliad*, and by showing one thing of one thing, non-accidentally. The point, once again, seems to be that a certain sort of structure, one that guarantees unity, is required for a definition.)

We might try to understand this passage by seeing it as describing a conception of nominal definition that is looser than the conception Aristotle articulates in 2.10; we might, that is, explain this passage away by suggesting that 2.7 represents a less precise, and 2.10 a more precise, account of nominal definition. The necessary constraint on accounts that say what a word, the referent of which exists, means is introduced, as we have seen, in 2.8: they must say something of what the thing is. In case the thing in question does not exist, this will not be possible, and we will be able to formulate an account, but not a definition, not even a nominal definition. If this is right, and by 2.10 Aristotle is offering us a conception of nominal definition that is stricter than the conception of saying what a word means that we find mentioned and criticized in 2.7, stricter in the sense that it requires saying something of what the thing is and thereby giving us knowledge of the existence of the definiendum, then such nominal definitions would seem to function to answer the questions *ὅτι* and *εἰ ἔστι*, leaving the scientist free to ask about the *aition*.

While we might explain away the passage in 2.7 in this way, we cannot do that with other evidence earlier in the *Posterior Analytics* that Aristotle did not think that definitions, or definitions that say what a name means, are somehow involved in establishing the existence of the object of definition. For example, at 1.1 71a11–16 Aristotle says, “There are two ways in which we must already have knowledge: of some things we must already believe that they are, of others we must grasp the meaning of a term (τί τὸ λεγόμενόν ἐστι), and of some things both. For example, we must believe that it is the case that everything is either asserted or denied truly; we must grasp that “triangle” means this (ὅτι τοῦδὲ σημαίνει), and we must grasp both what “unit” means *and* that it is.” This suggests that it is at least possible to know what a word means without knowing that that to which it refers exists.³⁴

³³ Because this passage occurs in 2.7, one of the “aporetic” chapters, it is debatable whether we can assume that Aristotle means anything he says there. On the other hand, since nothing he says elsewhere specifically responds to these criticisms of nominal definition, we have to take them seriously.

³⁴ One might think that there is a difference between knowing what a word means and having a nominal definition, where the latter necessarily involves knowing some-

Moreover, in contrasting “triangle” with “unit” in 1.1 because one can know what “triangle” means without knowing that it exists, and in using “triangle” as the example of an object of nominal definition in 2.10, Aristotle suggests precisely that knowing that something exists is not a requirement for having a nominal definition.

Another passage which suggests that nominal definitions do not involve knowledge of the existence of the referent of the definiendum is at 1.2 72a18–24. Aristotle distinguishes between posits and axioms, and then divides posits into two kinds: “A posit which assumes either of the parts of a contradictory pair (for example, I mean it assumes that something is or that it is not) I call a supposition (ὑπόθεσις). A posit which does not [assume either of the parts of a contradictory pair] I call a definition. For definitions are posits (mathematicians posit that a unit is what is quantitatively indivisible) but they are not suppositions (for *what* a unit is and *that* a unit is are not the same).” Here definitions (i.e. nominal definitions; this is clear from the example of the unit, the definition of which in 1.1 was said to be what the word “unit” signifies) are distinguished from suppositions precisely on the grounds that they do not assume (λαμβάνειν) that something is or is not.

Finally, at 1.10 76b35–37, Aristotle again distinguishes definitions from hypotheses on the grounds that definitions do not state that anything is or is not, “οὐδὲν γὰρ εἶναι ἢ μὴ λέγεται.”

These passages make clear that definitions (nominal definitions) do not *assume* or *say* that their definienda exist, but of course it does not follow from that that nominal definitions cannot be involved in establishing that their definienda exist. That is, if the nominal definitions of 2.10 say something of what the definiendum is, they can give us knowledge of the existence of that definiendum without either assuming or stating that existence.³⁵ They can, that is, allow us to grasp that some-

thing of what the thing is. This is in fact what I will argue, although the evidence for this is largely at 2.10 93b29–31.

³⁵ In saying this, I am relying on Sorabji, who points out that there is no inconsistency between the claims: (a) that there is no definition of non-existents, and (b) that definitions are non-committal as regards the existence of the things defined. (R. Sorabji, “Definitions: Why Necessary and in What Way?” in *Aristotle on Science*, ed. Enrico Berti [Padua: Antenore, 1981], 205–244, 219). Two ways of explaining why Aristotle says that definitions do not state that something is or is not the case are: 1) that Aristotle has in mind here only the definiens of a definition, which is not a statement at all (M. Mignucci, *L'argomentazione dimostrativa in Aristotele* [Padua: Antenore, 1975], cited by S. Mansion, *Le Jugement d'existence chez Aristote*, 2nd ed. [Louvain: Centre de Wulf-Mansion, 1976], 326, n. 46. See also B. Landor, “Definitions and Hypotheses in *Posterior*

thing is, without requiring that we *already* grasp that it is. Demoss and Devereux, following Charles, offer the most persuasive account of how nominal definitions can give us such knowledge, without assuming or presupposing it.³⁶ On this account, nominal definitions give us a reli-

Analytics 72a19–25 and 76b35–77a4”, *Phronesis* 26 [1981]: 308–318). Notice, though, that Mansion points out that a definition that is only a definiens always implies the statement attributing the definiens to the subject. 2) that because definitions are statements of identity which do not attribute one thing to another they do not state that one thing is or is not another. But it is not clear that τὸ εἶναι τι / τὸ μὴ εἶναι τι must or can mean that one thing is or is not *another* thing.

Of course, to argue that Aristotle distinguishes between nominal definitions that are outside of science and indemonstrable immediate definitions that are among the premises of demonstrative science, one must account for those passages (72a18–24; 76b35–37) where Aristotle speaks of nominal definitions as though they were the premises of demonstration. One way to account for such passages is to suggest that early in the *Posterior Analytics* Aristotle is still working out the difference between these types of definition, which only becomes clear in the second book (Mansion, 328, n. 53). It is also worth noting that such passages pose problems on any interpretation, since the difficulty arises because Aristotle maintains (a) that definitions do not state τὸ εἶναι τι / τὸ μὴ εἶναι τι and (b) that definitions are primary premises which do state τὸ εἶναι τι / τὸ μὴ εἶναι τι. For a very different account of the relation of pre-scientific definitions to the primary premises of demonstration, see Michael Ferejohn, *The Origins of Aristotelian Science*.

There remains, of course, disagreement about the interpretation of the phrases τὸ εἶναι τι / τὸ μὴ εἶναι τι in *Posterior Analytics* 1.2. Some commentators (Themistius, Aquinas, Ross, Barnes) take Aristotle to mean that hypotheses, unlike definitions, state that something does or does not exist (Themistius, *Analyticum Posteriorum Paraphrasis*, C.A.G., ed. M. Wallies, vol. 5, no. 1 [Berlin, 1900]; Thomas Aquinas, *In Aristotelis Libros Peri Hermeneias et Posteriorum Analyticorum Expositio*, ed. P. Raymundi and M. Spiazzi [Turin: Marietti, 1955], L I, I, Lectio V, n. 51 [8]; Ross, *Aristotle's Prior and Posterior Analytics*, 508; Barnes, 1994). For a more recent version of this position, see Landor, “Definitions and Hypotheses in *Posterior Analytics* 72a19–25 and 76b35–77a4”. Some claim, however, that for Aristotle the distinction between being and non-being is not equivalent to the distinction between existent and non-existent, since, for example, there are potential beings that are both beings and non-existent. On this view it is the distinction between being and non-being that is important. (Philoponus seems to support this position [Philoponus, 131 30–132 3], as does J. Owens [*The Doctrine of Being in the Aristotelian Metaphysics* (Toronto: P.I.M.S. 1978), 288–290]. Gomez-Lobo holds a similar position in “The So-Called Question of Existence in Aristotle, *An Post* II 1–2,” *Review of Metaphysics* 34 [1980]: 71–89. See also J. Hintikka, “The Ingredients of an Aristotelian Science,” *Nous* 6 [1972]: 55–69.) Still other commentators (e.g. J. Barnes, *Aristotle's Posterior Analytics* [Oxford: Clarendon, 1975], 103–104) have suggested that the difference is that hypotheses state that something is or is not the case (and hence that hypotheses are not existential statements, but attributive) while definitions do not do this (and are not attributive).

³⁶ In rejecting the view that nominal definitions presuppose knowledge of the existence of the phenomenon in question Demoss and Devereux (“Essence, Existence, and Nominal Definition in Aristotle's *Posterior Analytics* II 8–10”) distinguish their position from that of Bolton who argues, as we will see, that one must be familiar with certain

able means of picking out genuine instances of the phenomenon.³⁷ This means that the knowledge of existence that comes with nominal definitions, or is entailed by grasping a nominal definition, is an ability to discern genuine instances of the phenomenon when confronted with such instances, rather than a familiarity with particular instances.³⁸

My claim, then, is that nominal definitions function as preliminary definitions for objects both simple and complex, and hence that they are preliminary both to syllogistic definitions and to immediate definitions. Most commentators who acknowledge nominal definition as a genuine type suggest that nominal definitions are simply identical with type (3) definitions, the conclusions of the syllogisms that display syllogistic definitions. I think this is a mistake, because there is no evidence to suggest that Aristotle intended to restrict nominal definitions to items with something else as their *aition*. To make this point, consider the reasons offered in support of the claim that nominal definitions are identical with type (3) definitions.

Some commentators argue that type (1) is excluded from the summary in 2.10 because it is identical with type (3). So, for example, Ross thinks we can establish the identity of (1) and (3) by noting that neither the definition which gives the meaning of a word nor the definition that is a conclusion of a demonstration show the *aition* of that which they define.³⁹ This establishes a resemblance, but not identity. Further grounds for the identity of types (1) and (3) are said to be found in 2.8, where Aristotle suggests that by starting from some partial acquaintance with that which is to be defined one can construct a demonstration which will display the full definition of certain items. Bolton, for example, argues that, “Nominal definitions deal with the familiar properties of some kind and these are typically ones that can be displayed in the conclusions of demonstrations dealing with these kinds.”⁴⁰ The first part of this claim, that nominal definitions deal with “familiar properties” is not found in the *Posterior Analytics*, where nominal definitions are said to be simply what the name of a thing or some other name-

instances of the phenomenon in order to construct the nominal definition in the first place (R. Bolton, “The epistemological basis of Aristotelian dialectic” in *Biologie, logique et métaphysique chez Aristote*, ed. D. Devereux and P. Pellegrin [Paris: Éditions du CNRS, 1990], 185–236).

³⁷ Demoss and Devereux, 143.

³⁸ Demoss and Devereux, 146.

³⁹ Ross, *Aristotle's Prior and Posterior Analytics*, 634–636.

⁴⁰ Bolton, “The epistemological basis of Aristotelian dialectic”, 522, n. 14.

like account *signifies*; Bolton draws his evidence for the claim from the *de Anima* and the *Physics* (413a11–20; 184a16ff.). These passages mention definitions (or principles), which are statements of what is more observable by us, and, in the passage from the *de Anima*, identify these definitions with syllogistic conclusions; but neither these passages nor the *Posterior Analytics* support an identification of definitions which mention familiar features and are the conclusions of syllogisms with nominal definitions.⁴¹ That “Thunder is a noise in clouds,” both expresses a familiar feature of thunder and might act as a nominal definition does not mean that nominal definitions as a class are identical with type (3) definitions as a class. In particular, if we take the evidence of examples in 2.8 and 2.10 (if we allow that a definition which says something of what the thing is is a nominal definition), it is clear that Aristotle thought we could formulate nominal definitions not only of items which have *aitia* other than themselves, but also of those items which do not (persons, souls, triangles etc.). The second part of Bolton’s claim, that the “familiar properties” of nominal definitions typically can be displayed in the conclusions of demonstrations, is then also unsupported by the evidence of *Posterior Analytics* 2.8–10.

I have been arguing in this section that nominal definition acts as a preliminary type of definition for both syllogistic and immediate definitions (when it is preliminary to syllogistic definition, it is identical with type (3) definition), by allowing us to grasp that the object of definition exists and so allowing us to pick out instances of that object. Once we can pick out instances of the object in question, we can determine the complete definition of that object, whether syllogistic or immediate. This is why, as I noted in Chapter One, Aristotle believes that it is possible in one sense to have knowledge of species before one has knowledge of the genus and differentiae that define that species; knowing the species in one sense just means being able to pick out instances of the species. Two questions remain. What is it that we know of “what it is” when we know a nominal definition? How does knowing this give knowledge of existence? As I have said, Bolton’s suggestion that nominal definitions mention “familiar properties of some kind” does not

⁴¹ Barnes considers that type (3) definitions are unlikely to be nominal definitions, just because they express, “something of the object itself” (Barnes, 1994, 222). But if, as I have said, Demoss and Devereux are right to say that Aristotle posits a technical sense of nominal definition in 2. 8–10 according to which such definitions *do* say something of what the thing is, then this feature of type (3) definitions does not tell against them being (one kind of) nominal definition.

seem to have adequate support in the *Posterior Analytics*. Along similar lines, Demoss and Devereux, as I have noted, take what we know to be some “observable property”.⁴² It is presumably the examples of type (3) definition in 2.8 that lead Bolton, Demoss and Devereux to these claims; if thunder is “a certain noise in the clouds” and eclipse is “a certain type of privation of light from the moon”, we might well infer that in general nominal definitions will mention some observable or familiar property. This seems a less obvious inference if we consider Aristotle’s examples of nominal definitions that are not the conclusions of demonstrations: soul as “a self-moving thing” (93a24), people as “a certain type of animal”. We do not *observe* souls to be self-moving; we do not strictly speaking *observe* people to be animals. That souls are self-moving or people animals are truths that we must infer from what we do observe.

If what we know of what something is when we formulate a nominal definition is not an observable or familiar property, then what is it? To answer this question, we need to focus on what Aristotle takes to be included in the τί ἐστὶ of anything: the genus and the differentia. Demoss and Devereux suggest that by 2.10 Aristotle has developed two senses of τί ἐστὶ. According to one of these the τί ἐστὶ includes both the [efficient] cause of some phenomenon and an observable property, according to the other the τί ἐστὶ includes only the observable property.⁴³ This strikes me as an unnecessarily strained attempt to reconcile the claims that nominal definitions say something of the τί ἐστὶ and that nominal definitions do not state the cause. If we accept that some nominal definitions—those that say more than what a word signifies—say something of what the object to be defined is, something of its τί ἐστὶ, then we must accept that these nominal definitions say *something* of what the essence is. Since not all observable or familiar properties will be part of the essence, Aristotle cannot mean to say that knowledge of such properties is sufficient to guarantee non-incidental knowledge of the object of nominal definitions. The more likely solution to the apparently incompatible claims is that nominal definitions mention one part of the essence—the genus (which may well be more familiar to or observable by us)—but not the whole of the essence.⁴⁴ It is true that in

⁴² Demoss and Devereux, 151.

⁴³ Demoss and Devereux, 152.

⁴⁴ Bolton recognizes this (see “Aristotle’s Method in Natural Science: *Physics* I,” 1–29, 8–9).

the case of type (3) definitions this will mean that they will not mention the efficient cause, which, as we will see in the next chapter, acts as the differentia in type (2) definitions.

The important point is that nominal definitions must mention something of what the thing is, and this will be a non-accidental feature of that thing. Since Aristotle's view is standardly that definitions must have parts, where those parts are the genus and the differentia(e) (*Topics*, 1.8 103b15–16), we can expect that nominal definitions, while they may not be complete, will mention some one of these parts of what the thing is, whether genus or differentia. Aristotle's examples seem to confirm this, and to make clear that in each case it is the genus which is mentioned: eclipse is a "certain privation of light", thunder a "certain noise in clouds", people a "certain animal", etc. (*An. Po.* 2.8 93a22–24).⁴⁵ If this is right, then nominal definitions are not preliminary to the process of collection and division, but part of it. We have to arrive at a genus, a general kind, before we can begin to perform the division of that genus into species by determining the differentiae that establish those species. By contrast, if we take the "something of what the thing is" to be an observable or familiar property, rather than one of the constitutive parts of a causal definition, then we take Aristotle's nominal definitions to be preliminary not just to complete definitions, but to the process of collection and division as such. If we do this, then there is no obvious way to connect nominal definitions with the complete definitions to which they are preliminary. If nominal definitions pick out, not some part of the essence of the object of definition, but something more or less random, then Aristotle cannot explain how the consideration of such nominal definitions will help us to perform divisions along non-arbitrary lines.

My contention, then, is that we should understand the nominal definitions of 2.10 to be accounts of what a word signifies that say something of what the definiendum is, where that definiendum may be an item the complete definition of which will be such as to be displayed in a demonstration, and may be an item the complete definition of which will be an immediate positing because its *aition* is not something other

⁴⁵ Barnes thinks that the examples of 93a22–24 are not examples of items and their genera. But the examples are some noise in the clouds (of thunder), some privation of light (of eclipse), some animal (of people) and something that moves itself (of soul); and these all can surely function as genera, i.e. as kinds that might be subdivided into species.

than itself. That *some* nominal definitions should be type (3) definitions is plausible because nominal definitions function as preliminary to scientific or causal definitions (whether type [2] or not). Types (1) and (3) do not state the cause of the definiendum in its entirety, but only some part of the cause. We construct a type (2) definition (by means of a demonstration) from an acquaintance with a connection (as manifested in a type (3) definition) that we then proceed to explain. This acquaintance is a necessary preliminary to the construction of type (2) definitions. In the same way, the formulation of nominal definitions is preliminary to the formulation of type (4) definitions because, unless one knows the meaning of the definiendum, knows something of what its referent is, and knows thereby that it exists, one cannot know what it is that one is defining, and cannot go on to discover the cause as a whole.

ii. *Type (4) or immediate definitions*

I have been exploring what Aristotle says about nominal definition in order to understand it as a distinct and genuine type of definition, and ultimately to understand its relation to immediate definition and the objects of immediate definition. My claim has been that nominal definition is a preliminary not only to syllogistic definition, but also to immediate definition. Let me now say something more in support of that claim—in support, that is, of the claim that nominal definition is distinct from immediate definition, and hence that immediate definition is not simply identical with nominal definition. An immediate definition is, as we have seen, an indemonstrable account of what something is. That it is indemonstrable is sufficient to distinguish it from types (2) and (3). How is it to be distinguished from type (1)? That is, if nominal definitions tell us something of the τί ἐστὶ, and type (4) definitions are accounts of the τί ἐστὶ, will not at least some nominal definitions be type (4) definitions (allowing that some will be type (3) definitions)? If this were the case, then the summary at the end of 2.10 would only mention three sorts because all nominal definitions would be either type (3) or type (4) definitions—i.e. either demonstrable or indemonstrable accounts of what something is. This cannot, however, be quite right. Aristotle is very careful to say that certain definitions tell us *something* of the τί ἐστὶ. This something cannot be the whole of the τί ἐστὶ, since, if it were, it would make no sense for Aristotle to say that once we grasp that something *is* by grasping something of what it is, we can go on to ask what it is. There must be something of what it

is left to discover once we grasp the nominal definition. In the case of items which have something else as their cause that will be the efficient cause, which will be, as we will see in Chapter Three, the differentia in the definition. In the case of items that do not have something else as their cause (which I have already identified with ἀπλῶς items of which one asks τί ἐστὶ and the objects of type (4) definition), it will again be the differentia, but that differentia will not be something other than the object to be defined. Nominal definitions cannot then be a class of definitions constituted by type (3) definitions on the one hand and type (4) or immediate definitions on the other. Rather, some nominal definitions will be type (3) definitions, and some will be preliminary—and partial—accounts of the objects defined fully by immediate definitions. Type (4) definitions are indemonstrable because they are immediate, because there is no middle term that can demonstrate the connection between subject and predicate or substance and attribute. The nominal definitions that say something of what such an item is will also be indemonstrable. And type (4) definitions and the nominal definitions that allow us to construct type (4) definitions must be the definitions that Aristotle has in mind when he says that some definitions are primary premises (*An. Po.* 1.8 75b30–31); only these immediate definitions will be indemonstrable, which is among the necessary conditions for being a primary premise. Nominal definitions of type (3) are not indemonstrable.

IV. Conclusion

Aristotle's enumeration of the kinds of definition in 2.10 of the *Posterior Analytics* is then based on a fundamental distinction between items that have something else as their *aition* and those that do not. This distinction is both logical and epistemological/metaphysical, since it applies both to the objects of definition (these are non-linguistic) and to definitions. It may have been conceived as a distinction between kinds of definition and subsequently applied to the objects of definition; at any rate, it applies to both, since Aristotle held the view that the structures of definition reflect the structures of the object of definition, as I have suggested, and as we will see more clearly in Chapter Four.

The distinction as I have interpreted it is not between items that have *aitia* and those that do not, but between items that are or are not distinct (in a particular sense) from their *aition*. In Chapter Three I will be

exploring this sense of distinctness. Furthermore, it is not a distinction between substance and the other categories, but between simple items (some of which will fall into categories other than substance) on the one hand, and items which involve a connection, on the other.

Each side of the distinction is further divided into preliminary definitions, which do not state the *aition* in its entirety, and complete definitions that include the whole of the *aition*.

All four types of definition have some role to play in demonstration: as premises (type [4] and some of type [1]), as a kind of demonstration (type [2]), and as conclusions of that kind of demonstration (type [3], which is identical with some of type [1]). So although no definition, strictly speaking, is demonstration, all the types of definition that Aristotle recognizes as legitimate are connected with demonstration. Aristotle maintains the distinction between demonstration and definition in order to reveal them as two connected processes.

The distinctions among definitions rest then on Aristotle's conviction that there are different kinds of *aitia*; that things are either simple or complex; and that logical structure ought to reflect the structure of things. The distinction between syllogistic and immediate definition is particularly important for understanding how definitions can be first principles. Only immediate definitions can be first principles, and only because they have a certain structure, where that structure reflects the structure of their objects. I will say more about the structure of the objects of immediate definitions in Chapter Four.

Before that, in the next chapter, I will address a question that arises from the contrast I am proposing between syllogistic and immediate definitions: If syllogistic and immediate definitions both are produced by division, and are formulated in terms of genus and differentiae, and differ only in that syllogistic definitions can, and immediate definitions cannot, be displayed in demonstrations, why is that difference important? I have been arguing that the distinction reflects a distinction in the objects of these types of definition, where in the case of syllogistic it is a complex item the *aition* of which is distinct from the object itself, and in the case of immediate definition it is a simple item with an *aition* that is not distinct. I need to say more about that distinction, in order to make clear the particular structure of immediate definitions as first principles, and the necessity that belongs to immediate definitions as first principles.

CHAPTER THREE

DEFINITIONS AND *AITIA*

I have so far been emphasizing both a similarity and a difference between the two basic kinds of definition that Aristotle sets out in 2.10 of the *Posterior Analytics*, syllogistic definition and immediate definition. I argued in Chapter Two that immediate definitions and syllogistic definitions are similar in that both involve (complete) *aitia* of some sort. This, I claimed, distinguishes them from the two types of definition (types 1 and 3) that are preliminary to demonstrative science. At the same time, immediate definitions differ from syllogistic definitions, as I have suggested, because of the nature of the relation between the definition and the *aition* it involves. We know that in syllogistic definitions, the *aition* is something other than that of which it is the *aition*, and that this other item is named by the middle term of the syllogism. We also know that in immediate definitions, which must be expressed as true, indemonstrable sentences of the form, “X is Y”, the *aition* is the predicate; it does not name something other than the subject. If immediate definitions were not sentences of this sort they would not be immediate in the appropriate sense. (We will have to see how this immediacy is compatible with the requirement that they include *aitia*.) While syllogistic definitions can be expressed in sentences, these sentences will not be immediate; and immediate definitions cannot be expressed in syllogisms.

In this chapter I aim to show that Aristotle believes immediate definition to be the primary form of definition precisely because it is immediate, and that immediacy is a function of the relation between the parts of the definition, which is in turn a function of the structure of the object of immediate definition. The peculiar unity of that object gives immediate definitions the necessity that allows them to act as first principles for demonstration; and also makes it (the object of immediate definition) of interest to Aristotle in his discussion of substance as essence in the *Metaphysics*.

We have seen that the difference between immediate and syllogistic definitions is expressed both in formal terms and in terms of content. That is, immediate definition cannot be displayed in demonstrations,

while syllogistic definitions can be so displayed—to do so would be to posit a middle term between two terms which, by hypothesis, are connected immediately. This is the formal difference. And the difference in the relation between the object of definition and the cause of that object in the case of immediate definitions and syllogistic definitions is not a formal difference (although it is expressed by the formal difference), but rather a difference in the object itself. In this chapter I want to explore the relation between the formal difference and the difference in content in order to clarify the structure of immediate definition and the nature of the object of immediate definition.

I am going to argue that ultimately the difference between syllogistic and immediate definitions is the difference between definitions that include only formal *aitia* (these are immediate definitions) and definitions that include efficient *aitia* external to the object as well as formal *aitia* (these are syllogistic definitions). It is because both types of definition state what or why the subject is (τί ἐστι or διότι—where these amount to the same question, although their objects are different) that they must both involve *aitia*. But immediate definitions are unlike syllogistic definitions in that they can be among the first principles of a science because of the immediacy of the relation between their objects and the causes of those objects. The knowledge of the first principles that are immediate definitions shares with the knowledge of demonstrable conclusions a grasp of the cause and of the necessity of that cause—the difference is in the nature of the necessity. So the knowledge of first principles provides a basis for the certain knowledge of demonstrable conclusions.

Before considering in detail the structural differences displayed by syllogistic and immediate definitions because of their different relations to the causes they involve, I want to make three remarks about Aristotle's *aitia* for the sake of clarity. First, *aitia* include both certain objective features of the world and the terms or phrases that refer to those objective features (i.e. include both non-linguistic items and linguistic items).¹

¹ I think this claim is uncontroversial, although there is much debate about what sort of relation holds between the linguistic and non-linguistic items. Hocutt, for example, suggests that for Aristotle the notion of cause is parasitical upon the notion of explanation (M. Hocutt, "Aristotle's Four Beauses," *Philosophy* 49, no. 190 [1974]: 385–399, 387). Richard Sorabji's view appears to be similar: he holds that Aristotle's "causes" are conceptually dependent on his "explanations" (*Necessity, Cause and Blame: Perspectives on Aristotle's Theory* [Ithaca: Cornell University Press, 1980], 40). My own

That is, I proceed on the hypothesis that we ought sometimes to think of *aitia* as causes, and sometimes as explanations (if causes are objective features of the world and explanations are linguistic items that refer to those objective features).

Second, *aitia* are in every case responsible for (if not necessarily productive of) that of which they are *aitia*. This responsibility of course takes different forms, corresponding to the different kinds of αἴτια. These are, following the list at *Physics* 2.3 194b23–195a3, the *aition* out of which something comes to be ἐνυπόρχοντος; the *aition* which is the form or model, and which Aristotle identifies with the account of the essence; the *aition* which is the source of change or of remaining the same; and the *aition* which is the end or that for the sake of which something occurs. This list is repeated, in language virtually identical, at *Metaphysics* 5.2 1013a24–35, and again, more briefly, at *Posterior Analytics* 2.11 94a21–23.² The two kinds of *aitia* involved in syllogistic and immediate definitions are the formal and the efficient. But I will have to argue for this.

Third, let me say something about the relation between *aitia* and the questions, “what is it?” and “why?” that Aristotle mentions at the beginning of the *Posterior Analytics* and that I discussed in Chapter Two. We have seen that, although Aristotle distinguishes the objects of which one might ask διότι or τί ἐστι, he considers the two questions to be equivalent. Aristotle often identifies *aition* and διὰ τί, suggesting that that because of which (διὰ τί) something is can be any one of the causes. So, for example, at *Posterior Analytics* 2.2 90a1 and 90a6–7 Aristotle identifies *aition* and διὰ τί, first claiming that when we search for the διὰ τί of something we are searching for the middle term, and then that the middle is the *aition*.³ Again, at *Physics* 2.3 194b19–20 Aristotle identifies τὸ διὰ τί with τὴν πρώτην αἰτίαν and says that we do not

view is that Aristotle privileges the sense of “cause” over that of “explanation”. By this I mean that even in cases where it may be most natural to translate αἴτιον as “explanation”—e.g. when Aristotle speaks of the middle term in a syllogism as the αἴτιον of the conclusion—he means to say that the αἴτιον in question is responsible for what it explains. In this way, his understanding of causation extends to linguistic items.

² One interesting difference is that in the passage in the *Metaphysics* Aristotle includes the *parts* of the essence as well as the essence itself in the description of the αἴτιον which is the form or model.

³ At 94a20–24 Aristotle repeats that we think we understand (ἐπίστασθαι) when we know (εἰδῶμεν) the αἰτίαν, and enumerates the different kinds of αἴτια. For a discussion of Aristotle’s suggestion here that even the αἴτια of immediate definitions are middle terms, see Chapter Two pp. 53–54 above.

think that we know a thing until we have grasped the *διὰ τί* or *αἰτίαν*. Aristotle does not in these passages (or in a similar passage at 198a14–16) *distinguish* these two terms in any way. This suggests, of course, that in general *διὰ τί* can refer to any of the four causes. At the same time, as we have seen, Aristotle sometimes identifies the question *διὰ τί* with the question *τί ἐστὶ*, which asks for one of the four causes, the formal cause. Complicating matters further, in some cases Aristotle contrasts *διὰ τί* with *τί ἐστὶ* as kinds of cause (93b38–94a2). In these cases, I will argue, he intends *διὰ τί* to refer to efficient causes.⁴ So *διὰ τί* sometimes refers to any one of the four causes, sometimes to the formal cause in particular, and sometimes to the efficient cause in contrast to the formal cause. We can explain this once we see that in some cases the efficient cause is a part of the essence, and that Aristotle wants to distinguish those items the essences of which do involve efficient causes from those items the essences of which do not involve efficient causes.⁵

In Section I below I ask what it means for an *aition* to be other than the object of which it is an *aition*. We know that syllogistic definitions include the *aition* of the conclusion as the middle term of the syllogism. This *aition* indicates through what (*διὰ τί*) the connection stated by the conclusion comes about. The difficulty of interpretation lies in determining what it means for the *aition* which is stated by the middle term in a syllogism which displays a syllogistic definition to be other than (*ἄλλο* or *ἕτερόν τι*) the connection stated by the conclusion. How are we to understand the sense in which the *aitia* of syllogistic definitions are *other* than the connection expressed in the conclusion, and the sense in which the *aitia* of immediate definitions are the *not other than* their subjects? We need to ask which of the four kinds of *aitia* Aristotle thinks are appropriate to immediate definitions, and which to syllogistic definitions. If it is not the case that each kind of *aition* is appropriate to both types of definition, then we will have some evidence to help us determine what Aristotle means in speaking of certain *aitia* as *ἄλλο* or *ἕτερόν τι*.⁶ But since, as we saw in Chapter Two, Aristotle, in listing the

⁴ Aristotle does not treat *aitia* as the *answers* to *διὰ τί* questions, as, for example, Annas, supposes (J. Annas, “Aristotle on Inefficient Causes”).

⁵ I am effectively suggesting that essences and formal causes are not in all cases identical, because an essence will sometimes include the efficient cause as well as the formal cause. In all cases, essences are causal.

⁶ Let me dispose of a possible misunderstanding. At *Posterior Analytics* 2.11 93a23–24 Aristotle argues that any of the four *aitia* can be “shown” through a middle term. Of

kinds of definition, says of syllogistic definition only that it shows διὰ τί the object of definition is, and διὰ τί is at least sometimes identified with *aition* generally (as we just have seen), we have no reason as yet to exclude any of the four kinds of *aition* from inclusion in syllogistic definitions. I will argue that an *aition* is other than that which it causes when it is an efficient cause required as part of the formal cause of something. Having established that, I will consider the objection that we ought not to understand Aristotle to mean that sometimes an *aition* is different from that which it causes, and sometimes it is the same, because it makes no sense to talk of something being the same as its *aition*. I argue that there is textual evidence to support the claim that Aristotle intends to distinguish immediate definitions from syllogistic definition in this way, and that we can make sense of Aristotelian causes that are identical with what they cause.

In Section II below, I consider the necessity that Aristotle ascribes to immediate definition, and the difference between that necessity and the necessity of syllogisms, in order to confirm this distinction between two basic kinds of definition, and to begin to make clear why Aristotle privileges immediate definition and its objects over syllogistic definition. When, in Chapter Four, I turn to the discussion of definition in the *Metaphysics*, we will be in a position to see why that discussion is concerned exclusively with immediate definition.

I. *Aitia and the structure of syllogistic and immediate definitions*

We need now to consider why Aristotle posits the formal difference between immediate and syllogistic definition, and why he posits the difference in the relation between the objects of these two kinds of definition and their respective *aitia*. I am going to do this by asking what Aristotle means by a cause that is “other than” what it causes. Let us recall that Aristotle distinguishes between those things that have something else as an *aition*, and those that do not. We established in Chapter Two that this means that certain items (the objects of syllogistic definition) have an *aition* that is other than them while certain items (the objects of immediate definition) have an *aition* that is not something

course, if every syllogism which has as its middle term some instance of any one of the four kinds of *aitia* will qualify as a syllogistic definition, then every demonstration would be a syllogistic definition.

other. The question is, just what sort of object will count as one that has a cause other than itself? The best approach to that question is by way of the four kinds of cause—are any of the four kinds such that they cannot be, or must be, either other than or not other than that which they cause?

I think it is plain that it is the efficient cause that Aristotle describes as “other than” or “outside of” that which it causes. *Aitia* that are said explicitly to be ἕτερα cannot be ἐνυπάρχοντα that of which they are *aitia*, i.e. they are not part of that which they cause. And we have evidence at *Metaphysics* 12.4 1070b22–23 that it is the efficient *aition*, the source of motion and remaining the same, which is ἕτερόν τι. Earlier in the same passage, at 1070b9–15, Aristotle has identified form (εἶδος) and matter as the elements (στοιχεῖα) of perceptible bodies, and as the ἐνυπάρχοντα that he now distinguishes from the efficient *aition*. And at 1037a29 he says: “for substance is the internal form (τὸ εἶδος τὸ ἐνόν).”⁷ Earlier still, at *Metaphysics* 5.1 1013a19–20 he has said that some principles (ἀρχαί) are present in and some are outside (ἐκτός) that of which they are ἀρχαί. All *aitia* are ἀρχαί; so we might expect that some *aitia* are present in and some are outside of or other than that of which they are *aitia*. The examples of ἀρχαί that Aristotle offers us in this chapter confirm this. The ἀρχαί that are in that of which they are sources are material parts (the keel of a ship, the foundation of a house) and those that are outside are examples of efficient causes (parents with respect to a child, abusive language with respect to a quarrel). Moreover, at *Metaphysics* 1.3 984a22–26 Aristotle says that “something else” (ἕτερόν τι) and not the matter (wood or bronze) is the cause of the change (τῆς μεταβολῆς)—the production of a bed or a statue. “To investigate this is to investigate the other principle (τὴν ἑτέραν ἀρχήν), it seems to us, that from which the starting-point of the change [comes].”⁸ Again, then, the claim is that ἀρχαί, and hence *aitia*, which are *outside* that to which they stand as αἴτια/ἀρχαί are the efficient *aitia*.⁹ This then

⁷ My translation. Barnes has “indwelling form.”

⁸ My translation. At *Metaphysics* 5.8 1017b14–16 Aristotle identifies the soul of a living thing as a cause that is “present in” (ἐνυπάρχον) that which it causes to be.

⁹ At *Metaphysics* 10.3 1054b22–1055a2 Aristotle distinguishes between what is different (διαφορὰ) and what is other (ἑτερότης). What is different must be different either in genus or in species; what is other need not be other in some specific respect. The point seems to be that to say of X that it is “other” than Y is not to say anything very definite, whereas to say that X is “different” from Y is to say that it is “other” in a very particular respect.

is preliminary evidence that the *aitia* that are “other than” that which they cause will be efficient *aitia*.

We know that syllogistic definitions include causes that are other than their objects, and we have now identified such causes as efficient causes. Because definitions are supposed to tell us what something is, and not how it came about, it might seem odd that one kind of definition should mention the moving cause in particular. Certainly Aristotle allows that different kinds of causes might be mentioned in a definition, while maintaining that strictly speaking a definition will say what something is.¹⁰ A definition might be material or formal, or both, that is, it might mention the material *aition* or the formal *aition*, or both (*Meta.* 8.2 1043a3–11). We might infer that the formal and material *aitia* have a privileged relation to definition. It is these two kinds of *aitia* which are constitutive of that of which they are *aitia*: for example, the materials of a bed are both the parts of a bed and an *aition* of the bed, and the form of a bed is both what the bed is and an *aition* of the bed. But this would be misleading. Aristotle routinely collapses the efficient and final *aitia* into the formal, so that in saying a definition should include either the material or the formal *aition*, he is in effect allowing that a definition might include any of the *aitia*, since the formal, efficient, and final are in some sense the same *aition*. So, for example, in the *Parts of Animals* 1.1 639b14–15, Aristotle clearly privileges the final cause in the science under investigation, while identifying the final with the formal cause. In this context, however, he opposes an explanation (solely) in terms of efficient causes to an explanation in terms of formal causes; it is more important to say what something is than how it came to be (640a10–b29.). Aristotle does, on more than one occasion, oppose formal and efficient causes (*Meta.* 7.17 is interesting with respect to this distinction), but that opposition is not definitive.

It is clear then that the concerns of scientists in different contexts may well differ, and that because of those differences the causes mentioned in a definition may differ. But what is important here is that it is clear that only by mentioning the formal, the final, or the material cause, can one say *what* something is, rather than how it came about. If,

¹⁰ For a discussion of Aristotle as a pragmatist with respect to scientific explanation, if not definition, see Cynthia Freeland, “Accidental Causes and Real Explanations,” in *Aristotle’s Physics: A Collection of Essays*, ed. Lindsay Judson (Oxford: Clarendon, 1991), 49–72 (especially 63–65); and “Scientific Explanation and Empirical Data in Aristotle’s *Meteorology*” in *Biologie, logique et métaphysique chez Aristote*, ed. D. Devereux and P. Pellegrin (Paris: Éditions du CNRS, 1990), 287–320 (especially 311 ff.).

then, a definition must say what something is (*An. Post.* 2.10 93b29), then a definition must mention some one of those causes. And the reason is that only those causes are *in* that which is caused, while the efficient cause—even when it causes something to be what it is—is other than or external to that which is caused. The parts of the matter, as well as the parts of the form cause something to be what it is at the same time that they constitute that thing. While, as we will see, Aristotle privileges the parts of the form over the parts of the matter, and argues in the *Metaphysics* that it is the former rather than the latter that ought to be included in the definition, he is there of course speaking of the requirements of first philosophy. But the distinction between constitutive parts, whether material or formal, as internal causes, and some external moving cause, is more general. And while neither form nor matter is simply identical with that which it constitutes, neither are they other than what they constitute, whereas the moving cause must be.¹¹ But it is clear that Aristotle believes that in some cases the moving cause is in fact a part of the essence, even though it is not constitutive of the thing in question, and so it must be included in the definition, along with the formal cause.

I have been arguing that the distinction between causes that are other than their objects and causes that are not other than their objects is a distinction between formal causes and efficient causes. The evidence I have appealed to so far has been in passages that discuss the causes. Let us see now how the claim in question—the claim that the distinction between causes that are and causes that are not other than their object corresponds to a distinction between efficient and formal causes—fits with Aristotle's examples of syllogistic definitions in *Posterior Analytics* 2.8 and 2.10.

The question, then, is whether the examples of syllogistic definition support the claim that syllogistic definitions state not only a formal cause but also an efficient cause. In 2.8 the examples of syllogistic definition are introduced as cases where we grasp something of what something is, and hence know that it is (as opposed to cases where we grasp something incidentally, and therefore do not strictly know that it

¹¹ That Aristotle turns to a consideration of efficient causation in the *Generation of Animals* may be evidence that he associates efficient causes generally with the production, rather than the being, of animals (and perhaps other items). See P. Pellegrin, "De l'explication causale dans la biologie d'Aristote," *Revue de Métaphysique et de Morale*, no. 2 (1990): 197–219.

is) (93a29–30). That they are cases where we grasp something of what something is is connected to the claim that in some cases (these cases) we can in a sense demonstrate what something is (93a14–16). So we can expect to be able to formulate syllogistic definitions by re-arranging the terms of the demonstrations that Aristotle offers as examples. We need to bear in mind that Aristotle has already suggested the following as examples of what it is to know something of what something is: of thunder, that it is some noise in clouds, of eclipse that it is some deprivation of light, of person, that it is some animal, of soul that it is that which moves itself (93a22–24).

Let me begin with the last example of 2.8, at 93b7–14, because it is the clearest. The passage reads:

What is thunder? Extinction of fire in cloud. Why does it thunder? Because the fire in the cloud is extinguished. Cloud C, thunder A, extinction of fire B. Thus B belongs to C, the cloud (for the fire is extinguished in it); and A, noise, to this; and B is indeed an account of A, the first extreme. And if again there is another middle term for this, it will be from among the remaining accounts.

The example in this passage can be reconstructed as follows:

A cloud has extinction of fire.
Extinction of fire is thunder/noise in clouds.
A cloud has thunder/noise in clouds.

It is significant that Aristotle identifies one term, A, as both “thunder” and “a noise”. If we take the predicate of the conclusion to be “thunder” it is difficult to see how the demonstration will provide us with a syllogistic definition, since the predicate of the conclusion does not seem to name “something of what the thing is”, part of its essence, but rather the thing itself. If, on the other hand, we take the predicate of the conclusion to be, as Aristotle suggests at 93b11–12, “a noise”, then the conclusion will clearly be a definition of type (3), stating something of what the thing is, and we will be able to read off the demonstration as a whole a syllogistic definition: thunder is a noise in the clouds caused by quenching of fire. This is the example of a syllogistic definition that Aristotle offers at 2.10 94a5, confirming that we should understand the predicate to be “a noise” and not “thunder”. What is important is that the middle term is what brings about the conjunction expressed in the conclusion. The noise in the clouds is thunder only if it is brought about by the extinction of fire in clouds; if anything else were to produce a noise in clouds, that noise would not be thunder. The efficient *aition*

is thus required as a part of the essence. This is very important. It is precisely because in some cases we cannot say *what* the object of definition is without saying how it came to be that Aristotle thinks in some cases we must state the efficient cause as well as the formal cause. So in the case of simple objects and in the case of complex objects we state the formal cause, but in the case of complex objects we also state the efficient cause in the definition. This difference is significant enough to Aristotle that, as we will see, in the *Metaphysics* he comes to limit definition proper to simple objects and denies that complex objects can, strictly speaking, be defined.

One other point to notice in the example at 93b7–14 is that the demonstration does not *demonstrate* what thunder is; it demonstrates that thunder occurs (that there are noises in clouds brought about in the appropriate way). In so doing, it makes good Aristotle's promise that when we know something of what a thing is, we can know that it is (in this case, that noises occur in clouds). But the demonstration does *display* a definition, which we can construct simply by rearranging the terms, as we have been led to suppose it should.

Let me turn now to a second example of syllogistic definition in the *Posterior Analytics*, described in the passage at 2.8 93a29–32:

So in cases in which we grasp something of what the thing is, let it be first like this:—eclipse A, moon C, screening by the earth B. So [to ask] whether it is eclipsed or not is to seek whether B is or not. And this is no different from seeking whether there is an account of it; and if this is, we say that that is too.

The demonstrative syllogism suggested here needs to be understood on the model of the example we have just considered. As Aristotle presents it, the demonstration that will display a definition of eclipse would look like this:

All screening by the earth is eclipse.
The moon is screened by the earth.
The moon is eclipsed.

But this does not seem to be a demonstration that displays a definition of eclipse, nor does its conclusion seem to say something of what eclipse is. If, however, we replace “eclipse” with “privation of light”, which we seem to be entitled to do given the example at 93a23, we have the following demonstration:¹²

¹² At 93a22–24, Aristotle says, “But as to whether it [a thing] is, sometimes we grasp

All that is screened by the earth is deprived of light.
 The moon is screened by the earth.
 The moon is deprived of light.

The conclusion mentions something of what eclipse is (a certain deprivation of light); so it is a definition of type (3). From the conclusion and the middle term we can construct the syllogistic definition of eclipse, “a deprivation of light caused by screening by the earth.” The demonstration displays, but does not demonstrate this definition, of course. It demonstrates that the moon is eclipsed. If I am right about the relation of what we grasp beforehand to the construction of a syllogistic definition, then “a deprivation of light” is the genus of eclipse, and, in the case of an eclipse of the moon, that deprivation is brought about by a screening of the moon by the earth. The middle term of the syllogism, which is the *aition* of the conclusion, is both the efficient *aition* and part of the essence. What an eclipse *is* is in part how an eclipse is brought about. If the deprivation of the moon’s light occurred through some other means, it would not be an eclipse of the moon.

We should contrast this last demonstration, and the definition it displays, with the syllogism Aristotle presents at 2.8 93a36–93b2 to exemplify knowing a fact without knowing the reason why. The contrast is interesting because it makes clear that Aristotle believes a syllogistic definition *must* state the efficient cause of the definiendum; if it does not, it is not a syllogistic definition. The passage reads:

When we discover it, we know at the same time the fact and the reason why, if it is through immediates; if not, [we know] the fact but not the reason why. Moon, C; eclipse, A; not being able to produce a shadow during full moon though there is nothing evident between us, B. Then if B—not being able to produce a shadow though there is nothing evident between us—belongs to C, and A—being eclipsed—to this, then it is clear *that* it is eclipsed but not yet *why*; and we know *that* an eclipse is but we do not know *what* it is.

Here is the demonstrative syllogism that the passage suggests:

The moon is incapable of producing a shadow (although there is nothing evident between it and us).
 Incapacity to produce a shadow is an eclipse.
 The moon is eclipsed.

this incidentally, and sometimes when grasping something of the object itself—e.g. of thunder, that it is a sort of noise of the clouds; and *of eclipse, that it is a sort of privation of light ...*” (italics mine).

If this were a demonstration that displayed a syllogistic definition, the middle term “incapacity to produce a shadow” would have to be the efficient *aitia* of the conclusion. This would imply that the incapacity was such that it *produced* the eclipse of the moon, which Aristotle denies. He says of this syllogism that it makes clear neither *why* (διότι) the eclipse occurs, nor *what* (τί ἐστίν) an eclipse is. These are not two different failures; they are both the failure of the middle term to represent the efficient *aitia*. It is because in such a case we need to say what caused the conjunction in the conclusion in order to define the term in question, that it does not offer us a definition. That is, if we do not know from this demonstration what an eclipse is, then this is not a syllogism that displays the syllogistic definition of eclipse.

We have here enough evidence to conclude that the *aitia* which are ἕτερα, and therefore appropriate as middle terms in syllogistic definitions, will be efficient, while the *aitia* which figure in immediate definitions will have to be formal and not efficient (the formal cause appears in a syllogistic definition in the conclusion). This means that those items which are ἐπὶ μέρους and of which one asks διότι will have essences that include efficient *aitia* that are ἕτερα those items; and those items which are ἅπλως and of which one asks τί ἐστὶ will have essences that include formal *aitia* which are ἐνυπάρχοντα those items, but do not include a separate efficient cause. It is the case, as we have just seen, that the examples of syllogistic definition in *Posterior Analytics* 2.8 involve efficient *aitia* as middle terms (a screening by the earth [of the moon]; the extinction of fire), and that this is confirmed by the reiteration of one of the examples from 2.8 in 2.10.

I have been arguing that while both immediate definitions and syllogistic definitions include necessarily the formal causes of their objects (because they say what the object is), the essences of the objects of syllogistic definition are different from the essences of the objects of immediate definition. The difference, I have claimed, is precisely that the essence set out in a syllogistic definition will include an efficient cause, and that efficient cause will be something “other” than what it causes. So, for example, the definition of eclipse (what it is to be an eclipse) includes being brought about by the screening of the moon by the earth, although the eclipse is not itself the screening of the moon by the earth. Similarly, what thunder is includes being brought about by the quenching of fire in clouds but it is not itself that quenching.

One might, however, object that the *aitia* which is the formal cause (and which is ἐνυπάρχοντος) is said to be a middle term too, and so

the distinction between the essences expressed in immediate definitions and the essences expressed in syllogistic definitions is not significant. But I do not think the evidence supports this. At 2.11 94a35–36, when Aristotle is engaged in illustrating how any of the *aitia* can serve as middle terms, he says, “And the middle term has also been proved to be the cause of what it is to be something (τοῦ τί ἦν εἶναι).”¹³ The cause of what it is to be something is certainly the essence. The “has been proved” may be a reference to the demonstrative syllogisms Aristotle discusses in 2.8, since it is not obviously a reference to any of the syllogisms Aristotle mentions in 2.11.¹⁴ If it is a reference to 2.8, then the efficient *aitia* of 2.8 are certainly part of the essence of the object of definition. This is in accord with my suggestion that in the case of complex objects of definition the essence includes the efficient cause, while the syllogistic definition of such objects makes clear that that efficient cause is something other than the object of definition. Certainly I do not want to say that *no* essence may be (partially) displayed as a middle term; on the contrary, my point is that in the case of complex objects of definition and the syllogistic definition that represent them, the essence is in part an efficient cause which is best displayed as a middle term in a demonstrative syllogism.

In this view, then, Aristotle distinguishes two kinds of essence, one of which includes the efficient cause of the object caused, and one of which is restricted to the formal cause. My claim has been that this distinction captures the distinction between the objects of syllogistic definition and the objects of immediate definition.¹⁵ I want now to say a little more to justify the claim that Aristotle conceives of essence in these two ways, and that he links these two ways to the distinction between simple and complex objects and their definitions. To do this I propose to consider once again the relation between, and the difference between, the τί ἐστὶ question to which an immediate definition should be offered as a response, and the διότι question, to which a syllogistic definition is an

¹³ Here I follow Barnes in reading τοῦ τί ἦν εἶναι for τὸ τί ἦν εἶναι.

¹⁴ Certainly this is how Barnes understands the passage.

¹⁵ It is surely in part the oddness of the causal relation in syllogistic definitions that brings Aristotle in the *Metaphysics* to restrict definition proper to immediate definitions (see below, Chapter Four).

McKirihaan points out that syllogistic definitions are odd, just because Aristotle seems to exclude the possibility that there is a distinct definition of the “kooky objects” which substance/attribute combinations are (McKirihaan, *Principles and Proofs: Aristotle's Theory of Demonstrative Science*, 206).

appropriate response, in both the *Posterior Analytics* and the *Metaphysics*. We will see that Aristotle explicitly distinguishes between saying what something is by naming its efficient cause (and so answering a question διότι) and saying what something is by naming its final cause (which answers a question τί ἐστί), and treats both of these as ways of stating the essence. Moreover, he makes clear that this distinction stems from a difference in the kinds of object about which one might ask the question. I want to establish that in the case of one kind of object (complex objects) the efficient cause must be mentioned in the account of the essence, but that this is not true in the case of another kind of object (simple objects).

We saw in Chapter Two that Aristotle identifies *what* something is (τί ἐστί) with *why* something is διὰ τί ἐστί (2.2 90a14–15). He offers an example of this at 2.8 93b7–9, when he cites answers which differ only superficially to the questions, “What is thunder?” and “Why does it thunder?”. I say that the difference is superficial, because it is strictly grammatical: as an answer to the first question Aristotle suggests, πυρὸς ἀπόσβεσις ἐν νέφει, and as an answer to the second, διὰ τὸ ἀποσβένυσθαι τὸ πῦρ ἐν τῷ νέφει. At 2.10 94a3–5 Aristotle seems to distinguish the questions διότι and τί ἐστί. But his remark, importantly for my view, is more precisely that *to say* what something is and *to say* why it is require one to use two different locutions. In other words, answering these questions will require two different grammatical constructions, as we have just seen; but both answers tell us ultimately what something is, i.e. what its essence is. And since the answers both name the quenching of fire in clouds, which Aristotle takes to be the efficient cause of thunder, this example is a case where the essence of something includes its efficient cause. So, at least sometimes, the efficient cause must be mentioned in the λόγος of the essence.

The most extensive discussion of the question διὰ τί, and the passage that makes clearest why Aristotle thinks that this question amounts to the question τί ἐστί, although their objects are different, is at *Metaphysics* 7.17. I quote the passage at some length:

Since, then, substance is a principle and a cause, let us attack it from this standpoint. The “why” is always sought in this form—“why does one thing attach to another?” For to inquire why the musical man is a musical man, is either to inquire—as we have said—why the man is musical, or it is something else. Now “why a thing is itself” is doubtless a meaningless inquiry; for the fact or the existence of the thing must already be evident (e.g. that the moon is eclipsed), but the fact that a thing is itself is

the single formula and the single cause to all such questions as why the man is man, or the musical musical, unless one were to say that each thing is inseparable from itself; and its being one just meant this. This, however, is common to all things and is a short and easy way with the question. But we can inquire why man is an animal of such and such a nature. Here, then, we are evidently not inquiring why he who is a man is a man. We are inquiring, then, why something is predicable of something; that it is predicable must be clear; for if not, the inquiry is an inquiry into nothing. E.g. why does it thunder?—why is noise produced in the clouds? Thus the inquiry is about the predication of one thing of another. And why are certain things, i.e. stones and bricks, a house? Plainly we are seeking the cause. And this is the essence (to speak abstractly), which in some cases is that for the sake of which, e.g. perhaps in the case of a house or a bed, and in some cases is the first mover; for this also is a cause. But while the efficient cause is sought in the case of genesis and destruction, the final cause is sought in the case of being also.

The object of the inquiry is most overlooked where one term is not expressly predicated of another (e.g. when we inquire why man is), because we do not distinguish and do not say definitely “why do these parts form this whole”? But we must distinguish the elements before we begin to inquire; if not, it is not clear whether the inquiry is significant or without meaning. Since we must know the existence of the thing and it must be given, clearly the question is why the matter is some individual thing, e.g. why are these materials a house? Because that which was the essence of a house is present. And why is this individual thing, or this body in this state, a man? Therefore what we seek is the cause, i.e. the form, by reason of which the matter is some definite thing, and this is the substance of the thing. Evidently, then, in the case of simple things no inquiry nor teaching is possible; but we must inquire into them in a different way. (1041a9–b10)

In this passage we find an account of the nature of the causes that are ἐνυπάρχοντες. The discussion is about substance (οὐσία), which Aristotle points out is a principle (ἀρχή) and an αἰτία τις (1041a9–10). He moves from this remark to a claim about the nature of the question διὰ τί—that it is always a question about why one item belongs to another. Aristotle feels justified in moving from speaking of substance as an *aition* to speaking of the nature of the question διὰ τί presumably because he supposes that to mention a cause in the sense of a substance will be a response to some διὰ τί question. And a cause in the sense of a substance will be an essence, and so the kind of cause that must be included in a definition. The issue is: what is the content of the διὰ τί question to which a substance, as an *aition*, is the answer? The question cannot be whether a certain kind of thing (e.g. thunder) exists.

Aristotle takes this for granted; or rather, he supposes that unless it is taken for granted one cannot ask διὰ τί (or, for that matter, τί ἐστὶ). Moreover, Aristotle rejects the suggestion that the διὰ τί question is classificatory, and argues that it is instead constitutive.¹⁶ That is, rather than being the question, “Why is this (particular) person a person?”, or “Why is the musical musical?” it is the question, “Why is a person an animal of such a sort?” or “Why is sound produced in clouds?” or “Why are these stones and bricks a house?” which Aristotle interprets as instances of the question, “Why do these parts form this whole?” or “Why is this matter this thing?” (1041a21–b6). (Notice that the parts in question do not have to be material parts, but may be parts of the essence or definition.) He claims that when we ask these questions we are seeking the *aition* (1041a27–28). He adds that this is the essence (which he has identified with substance), which is in some cases—cases of being rather than coming-to-be—that for the sake of which (the final *aition*) and in some cases—cases of generation and destruction—the efficient *aition* (1041a27–30).

Now, if the essential or substantial *aition* is the answer to a διὰ τί question, it must be because to ask διὰ τί and to ask τί ἐστὶ is to ask the same question. This, as we have already remarked, Aristotle himself asserts, so it is hardly surprising. What this passage makes clear is that, just because the answers to each of these questions will have to specify what the essence is, the questions are themselves equivalent. Because, however, the objects to which these questions are addressed are different, the essence in question will be different in the two cases. Here Aristotle specifies that in some cases the essence will be a final *aition* and in other cases, an efficient *aition*. The point seems to be that in cases in which the definiendum is something produced or destroyed, it is not enough to say what the formal cause is; one must add what brought it about, if the essence is to be stated completely. So for example, it is not enough to say that thunder is a noise produced in clouds, one must add that it is produced *by* the quenching of fire. In other cases, it is enough to say what the *aition* of the being (rather than of the coming-to-be) is. This may be because in the case of items which can be defined by syllogistic definitions the efficient cause is something other than the thing itself, whereas in the case of items which cannot be defined by syllogistic definitions but only by immediate definitions the

¹⁶ “Classificatory” and “constitutive” are Frank Lewis’s terms; see *Substance and Predication in Aristotle* (Cambridge: Cambridge University Press, 1991), 174.

efficient cause is the same (in kind if not in number) as the thing itself. If this is right, then ἐπὶ μέρους items will be items which come-to-be, whereas ἀπλῶς items will be cases of being.¹⁷

Insofar as διὰ τί and τί ἐστὶ are to be distinguished, then, it is according to their objects, as we saw in Chapter Two. That is, τί ἐστὶ is asked of a simple (ἀπλῶς) item, and διὰ τί of a subject-plus-attribute. The sort of *aition* we are looking for in the first case is one that is not ἕτερόν τι (which, as we have seen, will be formal and final); the sort of *aition* we are looking for in the second case is ἕτερόν τι, and that, as we have seen, means that it will have to be an efficient *aition* which is also part of what it is to be the item in question—part of what it is to be thunder is to be produced by the quenching of fire.

I have so far been concentrating on the difference between immediate definition and syllogistic definition, the objects of immediate and syllogistic definition, and the causes of the objects of immediate and syllogistic definition. My aim has been to make clear the connections among the formal structure of such definitions (as displayed in syllogisms or in propositions), the objects of these definitions (as simple or complex) and the causes of these objects (as “other than” in the sense of efficient or not “other than”). We need now to address a question that arises about immediate definitions from the passages at 93a3–6 and 93b21–28 cited above. Here again are the passages:

Since, as we said, to know what something is and to know the explanation of whether it is are the same—the argument for this is that there is some explanation, and this is either the same thing or something else. (*An. Po.* 2.8 93a3–6)

Of some things there is something else that is their explanation, of others there is not. Hence it is clear that in some cases what a thing is is immediate and a principle; and here one must suppose, or make apparent in some other way, both that they are and what they are ... but in those cases which have a middle term and for which something else

¹⁷ Goldin says of the passage at *Meta.* 7.17 1041a32 that one might think “Aristotle is claiming that every essence of a universal kind includes the final cause of that kind but not its efficient cause. But there is a distinction between those kinds that are substantial and those that are not. Those that are substantial do not have their forms come into being (7.7 1033b5–8, 15 1039b23–27). An inquiry into why there exists such a substantial form is a case of inquiry into being, not an inquiry into a coming into being or passing away,” (*Explaining an Eclipse*, 32). By “those [kinds] that are not [substantial]” Goldin means kinds that are “natural but nonsubstantial phenomena or events, like the lunar eclipse.”

is a cause of their being, one can, as we said, make them clear through a demonstration, but not by demonstrating what they are. (*An. Po.* 2.10 93b21–28)

The question is, should *aitia* not *always* be distinct from or other than that of which they are the *aitia*? In other words, how can something (namely, the object of an immediate definition) be an *aition* for itself?¹⁸ Yet another way to pose the question is to ask whether simple items are the right sort of item to have *aitia* at all? If we think they are not, we will be led to suppose that Aristotle cannot mean that simple items are the same as their *aitia* which are expressed in immediate definitions, and that he must intend to say that while some things have an *aition* which is other, certain other things—simple items—have no *aition* at all. Let us look at the reasons we might think simple items cannot have *aitia*, and then at the reasons Aristotle has for thinking they do.

In recent discussions of explanation, explananda are most often supposed to be events (Hempel) or facts or processes (Salmon).¹⁹ If we assume that Aristotle's *aitia* are explanations, then we would expect them to be explanations of events, or facts, or processes. Similarly, if *aitia* are causes, we would expect them to be causes of events, or facts, or processes. And while Aristotle's syllogistic definitions often cite the *aitia* of events like thunder and eclipses of the moon (see *Posterior Ana-*

¹⁸ This question is especially problematic if we take the *aition* in an immediate definition to be an explanation (since it is certainly a linguistic item) that refers to a cause (since Aristotle's *aitia* are certainly *responsible* for that of which they are *aitia*). On some theories of explanation, an explanation must be an argument. So, for example, on the DN model of explanation or the Brody reformulation of the DN model, the predicate of an immediate proposition could not possibly furnish an explanation for the subject. Moreover, on a model of explanation that takes explanation to be essentially causal, and requires that a cause be distinct from its effect, a re-description of an item cannot be the explanation of that item; hence no immediate definition can be explanatory. And any model of explanation which inseparably associates explanation with necessitation, since such models standardly suppose that certain events or conditions necessitate certain *other* events or conditions, would have difficulty accommodating the *aitia* involved in immediate definitions as explanations. (At any rate, Aristotle does not suppose that every *aition* necessitates that of which it is the *aition*.) See Carl Hempel, *Aspects of Scientific Explanation* (New York: Free Press, 1965); B.A. Brody, "Towards an Aristotelian Theory of Scientific Explanation," *Philosophy of Science* 39, no. 1 (1972): 20–31; Wesley C. Salmon, *Scientific Explanation and the Causal Structure of the World* (Princeton: Princeton University Press, 1984); Peter Achinstein, *The Nature of Explanation* (Oxford: Oxford University Press, 1983); David-Hillel Ruben, *Explaining Explanation* (London: Routledge, 1999); Bas C. van Fraassen, "A Re-examination of Aristotle's Philosophy of Science," *Dialogue* 19, no. 1 (March 1980): 20–45.

¹⁹ See note 18.

lytics 2.8, 2.10, 2.11), immediate definitions cite the *aition* of some item in one of the categories, either substance or non-substance (people, triangle). Events are not items in any one of the categories, since Aristotle analyses them as substance/attribute compounds, as we have seen.²⁰ If, then, we limit the kind of thing which can be explained or caused to events, processes, or facts, we find that immediate definitions cannot be explanatory because what they would explain are not suitable explananda; it makes no sense to ask for an explanation of a person, or of the moon, or of triangle. What would we be asking were we to ask for such an explanation?

I do not want to respond directly to this question (there may be no adequate answer). I want instead to suggest why it is misguided. I have already pointed out that Aristotle has one strong reason to claim that there are *aitia* of simple items: namely that his conception of *aitia* includes four kinds, one of which is the formal, which is described as making individual items what they are. Given that this is the case, rather than concluding that the simple items of the *Posterior Analytics* cannot have *aitia* and hence cannot have explanations, we had better conclude that *aitia* are not explanations, at least not in the sense in which we ordinarily understand the term, nor are they causes in the limited sense of efficient causes. Now, the impetus to think of them as explanations in this context is due to the role of *aitia* as middle terms—as linguistic items in arguments. But in drawing this conclusion we are failing to appreciate the oddness of Aristotle's theory of definition, and in particular the oddness of his conflation of definitions with their objects. This conflation only becomes completely clear in the discussion of definition in the *Metaphysics*, which I will turn to in the next chapter, but we find hints of it here in the *Analytics*. Aristotle thinks that middle terms actually produce their conclusions (or that the conjunction of the premises produces the conclusion), apparently in the same sense that he thinks quenching of fire in clouds produces thunder. At the same time, he thinks that the definition of a simple item is the formal *aition* of that

²⁰ Irwin has argued that Aristotle accepted that all substance/attribute relations could be reduced to events. This is connected to his view that formal causes reduce to efficient causes. I think, on the contrary, that events are, for Aristotle, a kind of substance/attribute relation. For arguments to establish this position see Moravcsik, "What Makes Reality Intelligible? Reflections on Aristotle's Theory of Aitia," 31–47, 39–40; and McKirahan, *Principles and Proofs: Aristotle's Theory of Demonstrative Science*, 230. See also Annas, who holds the slightly different view, that events *involve* substances ("Aristotle on Inefficient Causes," 321). See p. 55 n. 15.

item, just as the essence of something is its *aition*. So, rather than taking simple items to be without *aitia* since they are not the right kind of item to have explanations, I propose that we should accept that they have *aitia*, and ask how we are to understand those *aitia*.

The *aitia* of immediate definitions cannot then be efficient *aitia* that are distinct from the object of definition; if they were, there would not be the difficulty that they must be somehow the *same* as what they are responsible for, that is, the difficulty that they do not seem to be recognizable as causes. It is thus *aitia* as we find them in immediate definitions that present a particular challenge to our understanding of *aitia*. And yet for Aristotle the *aitia* of immediate definitions are the formal *aitia*, which serve to maintain that which they are responsible for, rather than to produce anything; we have seen that Aristotle speaks of final causes in this way in *Metaphysics* 7.17. So the question is, how can such formal *aitia* be either explanatory or causal, given that they are nothing other than their own subjects?

One way of understanding formal *aitia* is to see them as mereological explanations insofar as they are accounts that enter into definitions; and to see them as the parts of their subject insofar as they are entities and non-linguistic items.²¹ As explanations, then, the formal *aitia* of immediate definitions explain their subject by describing its parts. Now, of course, if one thinks that we can only explain something by offering an account of how it comes into being, this will be unsatisfactory. But there is no reason to suppose that Aristotle held such a view; and every reason to suppose, on the contrary, that he thought that in certain cases, namely in the case of simple items, such an “explanation” is exactly appropriate, and indeed the only way to offer an explanation.

The evidence for this is again in the discussion of the question διὰ τί at *Metaphysics* 7.17. We have seen (above, on p. 96) that Aristotle specifies the question διὰ τί as, “Why do these parts form this whole?” or “Why is this matter this thing?” (1041a33–b6). We should expect the question τί ἐστὶ to be specified in the same way, given that Aristotle thinks that it is equivalent to the question διὰ τί, and given that both questions anticipate a response that indicates an *aition*.²² Of course, it

²¹ For a general account of mereological explanation see David-Hillel Ruben, *Explaining Explanation*, 218–222.

²² Irwin recasts the question as, “How did this kind of item come into being?” or “Why is this kind of item as it is.” The first of these cannot be right, since it suggests that Aristotle took the question to be about the generation of the item in question, and there is no evidence that this is right. Irwin, *Aristotle’s First Principles*, 95.

might seem odd to ask why the parts form a whole in the case of a simple item. But the simplicity of a simple item is not a question of being without parts; it is a question of the unity of those parts. And again, Aristotle is explicit that the definition of simple items involves the specification of parts. These parts are not the so-called parts of the matter, but rather the parts of the form. So the definition of a simple item should tell us the parts of the *aitia* that is formal. And that is of course exactly what it does, in those examples Aristotle offers. If we allow that the specification of parts is a kind of explanation (a mereological explanation), then we can even maintain that in a sense immediate definitions do *explain* their subjects. So that, for a certain sense of explanation, simple items are appropriate objects of which to demand an explanation.

It is worth noting that there is a precedent for this notion of explanation in Plato's *Theaetetus* (see above, p. 15) in the discussion of the proposed definition of knowledge as true belief with an account or a definition (*lógos*) at 206dff. Of the attempts to say what an account is in this passage, the first is to make one's thoughts clear in words, the second is to list the material parts, the third is to point to some distinguishing mark. Each of the latter two attempts is important for our purposes here, because each is shown to be problematic in the *Sophist*. More accurately, perhaps, Aristotle thinks that each is problematic, but Plato in the *Sophist* shows only the notion of an account as a list of material parts to be inadequate. The method of division in the *Sophist* is clearly intended to discover "parts" that are not material. And Aristotle in the *Metaphysics* argues that parts of the essence (non-material parts) are just what the definition ought to contain (I will discuss this below in Chapter Four). We know that for Aristotle a definition that could be used to classify accurately but did not make clear what something is would be unsatisfactory as an immediate definition; and in Plato's criticism of the notion of an account as some identifying mark at the end of the *Theaetetus* we find the same point. At any rate, the interest for us here of the discussion of the notion of "account" in the *Theaetetus* and the *Sophist* is that it is evidence that it was not new to suppose that a definition might be just a statement of the elements of the object of the account (whether material or essential elements).

But what I have said so far does not explain why Aristotle believes that specifying the parts of something might answer the question, "Why do these parts form this whole?" or "Why is this matter this thing?". That question can only be answered by the discussion of definition in

the *Metaphysics*, where Aristotle tries to make clear the relation between the parts of a definition, and how that relation guarantees unity. That is, Aristotle will ultimately argue that specifying the parts of an object can amount to offering an explanation for that object, when the parts are such that they form a unity, because specifying the parts at the same time makes evident why the parts form a whole. This I will consider below, in Chapter Four.

II. *Why and how definitions with aitia are necessary*

In this section I aim both to confirm the distinction between immediate and syllogistic definitions that I have been arguing for, and to show that Aristotle has reasons for taking immediate definition to be primary with respect to other kinds of definition. We have seen that immediate and syllogistic definitions involve complete *aitia*. We have also seen that such *aitia* answer the question τί ἐστὶ (or, more strictly, are or *express* the τί ἐστὶ of the item), which in some cases is more properly phrased as διὰ τί. The *aitia* in question are always formal, although in the case of syllogistic definitions, the formal *aition* is supplemented by the efficient. The efficient *aition* included in syllogistic definitions is other than the item that it produces; and so we have the result that in these cases the essence contains something (the efficient cause) which is not actually part of that which it causes. This may seem odd; the oddness of it may even have been apparent to Aristotle, who plainly is uneasy with the objects of syllogistic definition as complex items, the causes of which are in part “other than” the objects themselves. This uneasiness is made evident, I will claim, in the *Metaphysics*, where Aristotle restricts definition proper to simple objects and hence to immediate definition.

I want now to suggest that we have evidence for the distinction between complex and simple objects and their definitions in Aristotle’s discussion of two kinds of necessity, a discussion that has struck many commentators as troubling. More than that, the discussion of necessity suggests why Aristotle privileges immediate definition over syllogistic definition: because the causality and necessity of immediate definition is non-derived. My aim in this section is to demonstrate that Aristotle’s claims about necessity, and in particular about the different kinds of necessity he attributes to the first principles and the conclusions of demonstrative syllogisms, confirm the results of the discussion

of causality in immediate and syllogistic definitions above in Section I. It is because both immediate and syllogistic definitions are causal statements of certain kinds that they are necessary. Since we have seen that the causality of these two kinds of definition is rather different, we should expect that the necessity Aristotle attributes to them will also be different. This is indeed the case. We have to look first at Aristotle's account of the necessary as what cannot be otherwise and his distinction between two senses of the necessary. We will then consider the identification of καθ' αὐτό predications as necessary predications because this will explain in what sense causal statements of a certain sort are necessary.

To begin with, the most detailed statement of what Aristotle means by "necessary" is to be found in the *Metaphysics*: "That which cannot be otherwise is said to be necessary. And it is in virtue of this necessity that all the others, too, are somehow said to be necessary; ... Again, a demonstration is necessary in view of the fact that, if something has been demonstrated without qualification, it cannot be otherwise; and the causes of this are the first premises, if these, from which a syllogism proceeds, cannot be otherwise. Accordingly, of some things which are necessary, the cause is something distinct from them (τῶν μὲν δὴ ἕτερον αἴτιον τοῦ ἀναγκαῖα εἶναι), but of other things there is no cause distinct from them, but because of them other things are necessary. Hence, the necessary in the primary and main sense is the simple, for this cannot be in many ways so as to be now in one way and now in another, but if the latter were the case it would have been in many ways," (5.5 1015a35–b14). It is very important that Aristotle here explicitly connects the two senses of the necessary with two kinds of items: those that have a cause distinct from themselves, and those that do not. This connection makes clear the relation between three distinctions: between propositions and syllogisms, between what he will call simple necessity and conditional necessity, and between items with causes distinct from themselves and items without such causes.

Aristotle maintains the conception of the necessary that we find in the *Metaphysics* in the *Posterior Analytics*, where he states that demonstrable understanding (ἡ ἀποδεικτικὴ ἐπιστήμη) proceeds from necessary principles because whatever is understood cannot be otherwise (1.6 74b5–6). He has stated two conditions for understanding: that we should know the cause of what we understand, and that we should know it to be necessary (not possibly other than it is) (1.2 71b10–12). Since a demonstration is a syllogism the grasp of which is itself under-

standing, and since the proper object of understanding is something which cannot be otherwise, a demonstration will be a syllogism with necessary premises; if the premises were not necessary, the conclusion could not be known to be such that it could not be otherwise (1.4 73a23–24; 1.6 74b5–6, 13–15).

The necessity of the conclusion of a demonstration is guaranteed by the necessary relation of the middle term to each of the extremes, as expressed in the premises (1.6 74b27–31). Knowing the cause of the conclusion *as* the cause guarantees the necessity of the conclusion; if one were to know the conclusion without knowing its cause, then one would not in fact know that it was necessary; hence one would not have understanding. Now, the cause that is the middle term is, with respect to the conclusion, a cause that accounts for the relation between an attribute and a subject. But, in the case of first principles that are definitions, insofar as the cause that is a middle term is also the cause of one of the extremes, it is a cause that makes something simple what it is. “... it is the same to know what something is and to understand why it is (διὰ τί ἐστίν); and this is either of a thing simply taken and not of something belonging to it, or of something belonging to it.” (2.8 93a4).

In both the *Metaphysics* and the *Posterior Analytics*, then, Aristotle characterizes the necessary as that which cannot be otherwise. He claims that that which is necessary in the primary sense is simple; and he identifies the premises of demonstration as the origin of the necessity of that which is demonstrated. If the necessary principles of demonstration are the origin of the necessity of that which is demonstrated, then these principles will correspond to what is necessary in the primary sense, i.e. to what is simple. Given that definitions are among the principles of demonstration, and that some of these definitions will be immediate, and that immediate definitions are of what is simple, this is what we should expect. Moreover, the passage at *Metaphysics* 5.5 1015a35–b14 identifies the necessary in the primary sense as the simple, and describes the simple as those things without a cause other than themselves. Since we have seen that immediate definitions have as their objects those things which do not have a cause other than themselves, this serves as further confirmation that immediate definitions will be necessary in the primary sense, as simple.

We need to ask now what it means to say that immediate definitions cannot be otherwise. Aristotle gives content to the idea of what cannot be otherwise through a detailed analysis of what it is to belong

καθ' αὐτό. The necessity of both immediate and syllogistic definitions is a function of καθ' αὐτό predication. Whatever belongs to things καθ' αὐτά (in one of two senses) is necessary (*An. Po.* 1.6 74b6–10). Necessary first principles (among which are immediate definitions) will be predications of καθ' αὐτά or essential attributes to some subject, and syllogistic conclusions (which constitute part of syllogistic definitions) will also be predications of καθ' αὐτά attributes of some subject. Aristotle distinguishes two kinds of καθ' αὐτά attributes, the predication of which of some subject constitutes necessary propositions: “Things that are predicated in the case of what can be understood simply [τῶν ἀπλῶς ἐπιστητῶν], which are καθ' αὐτά either in the sense that their subjects are contained in them or in the sense that they are contained in their subjects, belong both because of themselves and of necessity to their subjects,” (1.4 73b16–18). Now, as Aristotle points out at 74b7–10, this means that καθ' αὐτά attributes either are in the τί ἐστι of that to which they belong, or else that to which they belong is in the τί ἐστι of the καθ' αὐτό attribute. In the former case, this amounts to saying that these attributes are (parts of) the essence; in the latter, that that to which they belong is (part of) the essence of the attribute. In either case, the necessary predication is necessary because it is a predication of a καθ' αὐτό attribute, and such an attribute stands in a particular causal relation to that of which it is predicated. To reiterate, the particular causal relation will be either (i) the attribute is (some part of) the essence of the subject or (ii) the subject is (some part of) the essence of the attribute.

The difference between indemonstrable premises and the conclusions which follow from them is reflected in the two sorts of καθ' αὐτό or essential attribute described by Aristotle. As we have just seen, the two sorts of attribute distinguished at 1.4 73b16–18 are those that are part of the essence of a thing, and belong in its definition, and those the essence and definition of which include the thing in question. Both sorts of attribute are attributable to all members of the species to which they belong as such, and both sorts belong to their subjects “because of themselves” (δι' αὐτά) (rather than accidentally), because they follow immediately on the nature of the thing in question. Just because these attributes belong because of themselves to their subjects they are also necessary, since either a) they must belong to their subjects or their subjects would not be what they are (in the case of parts of the essence) or b) they occur whenever the essence occurs, and as a consequence of the essence. Immediate definitions will be necessary because they are καθ' αὐτά predications of the first sort, where the predicate names some

essential attribute of the subject. Syllogistic definitions will be necessary first because the predicate of the conclusion of those syllogisms that display syllogistic definitions will belong *καθ' αὐτό* to the subject in the second sense of *καθ' αὐτό*; and second because the subject and predicate of the conclusion and the middle term of the demonstrative syllogism will collectively belong *καθ' αὐτό* in the first sense to the definiendum. For example, “noise” belongs *καθ' αὐτό* in the second sense to “clouds”, and “deprivation of light” to “moon”, but *only* when they are predicated through certain middle terms, i.e. through “extinction of fire in clouds” in the first case and “screened by the earth” in the second case. That is, “clouds” is part of the essence of “noise” only when the noise is a noise brought about by the quenching of fire in clouds, and “moon” part of the essence of “deprivation of light” only when the deprivation of light is one brought about by the screening of the moon by the earth. And “deprivation of light belonging to the moon, because of screening by the earth” belongs *καθ' αὐτό* in the first sense to “eclipse”, just as “noise belonging to clouds, caused by the quenching of fire in clouds” belongs to “thunder”.²³

Now, Aristotle distinguishes between what is merely true (*ἐξ ἀληθῶν*) and what is necessarily true (*ἐξ ἀναγκαιῶν*), and points out that if one proceeds from premises that are true but not necessarily true, one will never be able to *demonstrate* a conclusion because one will not be able to show that it holds necessarily in all cases (*An. Po.* 1.6 74b15–17).²⁴ So,

²³ For a different understanding of the role of these two sorts of predications in demonstrative science, see Michael Ferejohn, *The Origins of Aristotelian Science*, especially chapters four and five.

²⁴ To see what is problematic with the claim that immediate definitions, and other propositions of the form “B belongs to all A”, are necessary, it is useful to consider Günther Patzig’s complaint that Aristotle understands a distinction between the same necessity applied to two different forms of proposition to be a distinction between two different forms of necessity, (Günther Patzig, *Aristotle’s Theory of the Syllogism*, trans. Jonathan Barnes [Dordrecht, Holland: D. Reidel Co., 1968]). Patzig claims that Aristotle makes a clear distinction between the necessity which can sometimes occur as a modal operator on the final proposition of a syllogism and the necessity which always belongs to the conclusion of a valid syllogism. Patzig calls the former “absolute” necessity and the latter “relative” necessity. He claims that Aristotle usually (although not always) distinguishes these two kinds of necessity by using the phrase *ἐξ ἀνάγκης ὑπάρχειν* to refer to absolute necessity, and *ἀνάγκη ὑπάρχειν* to refer to relative necessity.

Patzig suggests that Aristotle’s “relative” and “absolute” necessity are not in fact two kinds of necessity, but the same necessity governing two different kinds of proposition. That is, to say that there are two kinds of necessity at work here obscures the difference between the necessary truth of an implication, and the necessity of the fact expressed

if the way to ensure that conclusions are necessary is to ensure that premises are necessary, the way to ensure that premises are necessary, and hence that they will lead to and guarantee the necessity of conclusions, is to make sure that they are predications of *καθ' αὐτά* attributes, in a particular sense.

The premises of a demonstration as well as the conclusion must then be necessary, but whereas the necessity of the conclusion is derived from the premises, and in particular from the relation of the middle term to the other terms in the premises, the necessity of the premises must be non-derivative when these premises are also first principles. So the necessity of definitions that are first principles is non-derived. Yet this necessity too is a function of causality, in that such definitions, such first principles, are necessary because of the necessary relation between the attribute (which is the cause of the subject) and the subject. The necessity of indemonstrable premises (among which we find immediate definitions) is then unlike the necessity of conclusions, or of demonstrable premises. It can only be the necessity that makes something what it is; since one cannot demonstrate what something is, this necessity is non-demonstrable, and non-derived.²⁵

by its consequent. On this view, Aristotle's "relative" necessity is really just necessity as it belongs to propositions of the sort, "If A, then B", whereas his "absolute" necessity is really just necessity as it belongs to propositions of the sort, "A belongs to B". Thus Patzig claims that the distinction as Aristotle draws it between absolute and relative necessity ignores the difference between the necessary truth of an implication and the necessity of the fact expressed by its consequent. That difference is that in the case of absolutely necessary propositions, the predicate belongs necessarily to the subject, whereas in relatively necessary propositions, even if the conditions are satisfied, it only ever follows that the predicate belongs as a matter of fact to the subject. Patzig adds that although Aristotle defined "relative" necessity incorrectly (as a kind of necessity belonging to the conclusion of a valid inference), he used in his syllogistic theory a different and perfectly correct notion of necessity. This perfectly correct notion of necessity, as we should expect, is one according to which the necessity of the conclusion denotes not the necessity of the conclusion alone, but the necessary truth of the whole compound proposition which forms an Aristotelian syllogism.

Patzig's claim is that "necessarily true" means nothing more than truth in all possible cases, so that necessity is always "absolute" (whether it governs a proposition of the form "A belongs to all B" or of the form "If A then B") and should be represented by a universal quantifier. Rather than two kinds of necessity, then, there is but one, although it can govern propositions of fundamentally different forms: Necessarily, A belongs to B, and Necessarily, if A then B. But of course Aristotle's absolute necessity is not a necessity that Aristotle conceives as belonging to conclusions at all; it is the necessity of primary principles, which precisely cannot have relative, or derived, necessity, but must guarantee the necessity of conclusions derived from them.

²⁵ We might ask whether the necessity of these definitions is understood by Aristotle

Causality and necessity in demonstrative syllogism are thus closely bound, since 1) immediate definitions as first principles are necessary propositions because they predicate the essence of the subject and 2) the conclusions of demonstrative syllogism are necessary propositions

to be *de re* or *de dicto*, and if *de re*, whether *de re* with respect to kinds or individuals, and if *de re* with respect to kinds, why such definitions should predicate attributes *κατὰ παντός* as they must in order to be *καθόλου*. Lukasiewicz suggests that Aristotle understood his definitions to be analytic, and takes him to task for this. See Jan Lukasiewicz, *Aristotle's Syllogistic From the Standpoint of Modern Formal Logic* (Oxford: Clarendon, 1957), 148–149; 206. Abailard is probably the originator of the distinction between *de re* and *de dicto* necessity (see W. and M. Kneale, *The Development of Logic* [Oxford: Oxford University Press, 1962], 212; see also Storrs McCall, *Aristotle's Modal Syllogisms*, Studies in Logic and the Foundations of Mathematics, [Amsterdam: North-Holland Publishing Company, 1963], 3). Richard Sorabji discusses all of these problems in “Definitions: Why Necessary and in What Way?”; much of what I say here is indebted to Sorabji's discussion.

If Aristotle's causal definitions are necessary because they are analytic, then it will be possible to know that the predicate attaches necessarily to the subject in these definitions simply in virtue of knowing what the subject is. That is, we will need no further information or observation to understand the necessity of the connection. Now, if some definitions are empirically determined, then not all definitions will be analytically true, and hence will not be necessary because analytic. It is evident that at least some definitions, the demonstrative definitions of *ἐπὶ μέρους* items, are empirically determined and hence are not analytic. Are the definitions of simple items, immediate definitions, also empirically determined? We have already considered (in Chapter Two) some evidence for the claim that simple items, too, can be known in a sense without complete knowledge of their formal causes. It is then possible to know what a thing is (in some sense of “know”) without knowing its formal cause in its entirety, possible, e.g. to recognize thunder as such and to distinguish it from other events without knowing its cause in its entirety, and to recognize people, without knowing their cause in its entirety. This suggests, contrary to Lukasiewicz, that Aristotle thought definitions, both immediate and demonstrative, could be constructed empirically, once one had the partial knowledge of the formal cause. And that partial knowledge of the formal cause, bestowed by the nominal definition, itself seems to be acquired empirically. If this is true, then neither nominal nor immediate nor demonstrative definitions need be analytic.

But if, then, immediate and demonstrative definitions are not necessary because they are analytic, in what sense are they necessary? If immediate definitions are to have the absolute or simple necessity (i.e. non-derived necessity) which serves as a foundation for the necessity of conclusions drawn from them, then they cannot have *de dicto* necessity. That is, they cannot be of the form, “It is necessary that all A is B” and must rather be of the form “All A is necessarily-B”. The first form of the proposition implies that the necessity is analytic, because “the predicate of an affirmative analytic judgment is already contained in the concept of the subject, of which it cannot be denied without contradiction,” (Kant, *Prolegomena to any Future Metaphysics*, Preamble, Section 2b, quoted by Sorabji). It should be remarked that there are those (e.g. Quine) who consider that the *only* necessity is *de dicto*. This view stems in part from a rejection of the claim that *de re* necessity is as it purports to be a necessity inherent in the thing (the subject) rather than in the proposition. See McCall, 34.

because their predicates express a καθ' αὐτό attribute of the subject that is not part of the essence of the subject but follows from that essence, and the subject, because it belongs to the definition of the predicate, is the cause (or part of the cause) of the predicate.

But if immediate and demonstrative definitions are necessary *de re*, they will take the form “A is necessarily-B”. And this leaves open the question whether the statement is a statement about a kind, or about the members of that kind. One very strong reason for taking this to be a claim about a kind is that Aristotle maintains that only kinds (the species of genera) have definitions. Furthermore, if it is a statement about kinds, then one is not justified in moving from the definition of the kind to a statement of this sort: Socrates is necessarily a featherless biped (one would have to argue: If Socrates is a person, then Socrates is necessarily a featherless biped). This is not justifiable, for two reasons, as Sorabji points out. 1) If the kind, people, is necessarily such-and-such, it does not follow that a particular member of that kind is also such-and-such, because it does not follow that any particular member of a kind is necessarily a member of that kind; that is, Socrates might not have been a person at all; he might have been a member of some other species. 2) If the kind, people, is necessarily such-and-such, it need not follow that every member of the kind will also be such-and-such, but only that every perfect member of the kind will be such-and-such. In other words, Socrates might lose a leg (or might have been born with one leg) and hence Socrates might not be biped, and yet he would remain a member of the species without in any way affecting the definition of the species (Sorabji, 212).

Against this evidence that Aristotle thought that kinds but not particular members of kinds were necessarily such-and-such, Sorabji offers the evidence of Aristotle's claim that the as-such attributes that are part of the essence of a thing (and hence make up the definition) belong κατά πάντος to their subject, (*An. Po.* 1.4 73a28–34).

For several reasons this is weak evidence for taking Aristotle to be committed to the *de re* necessity of individuals rather than of kinds. First, Aristotle's remarks about attributes belonging κατά πάντος to their subjects are in the context of a description of attributes which belong καθόλου. A καθόλου attribute he defines as one which belongs both κατά πάντος and καθ' αὐτό to its subject. Aristotle's point is that καθόλου attributes belong to every instance of their subject just because they belong to the essence of that subject. In other words, Aristotle's concern is not to maintain that every member of a species is necessarily such-and-such, but that essences, which, insofar as they are defined, are essences of kinds and not of individuals, are necessarily such-and-such. Second, while it is true that if an attribute belongs necessarily to every instance of a kind then Aristotle must allow that it belongs even to abnormal instances of a kind, this evidence does not affect the first obstacle noted above to the inference from a kind being necessarily X to a particular member of the kind being necessarily X. Even if every instance of a kind is necessarily X, no particular individual is necessarily a member of that kind. If something is a person, then it will be necessarily a featherless biped; but Socrates is not therefore necessarily a person. If then immediate definitions are necessary *de re* statements about kinds, then they can be expressed as universally quantified sentences. (For a different view, see Ferejohn, *The Origins of Aristotelian Science*, 41–44, 100–101). Third, definitions must be *de re* with respect to kinds, since Aristotle refuses to allow that individuals can be defined. But if definitions do not permit an inference from the kind to members of the kind, then what exactly is the subject of definition? Aristotle cannot be committed to a conception of a kind *distinct* from its members, since this would mean a commitment to some sort of separate universal.

Moreover, the relation between first principles and the first sort of κατ' αὐτό attribute on the one hand, and demonstrable conclusions and the second sort of κατ' αὐτό attribute on the other, makes clear that the causality and the necessity of demonstration are connected because they both stem from the expression of essence in demonstration. That is, the first principles (including immediate definitions) are necessary because they predicate the essence (which is the formal cause) of a certain subject of that subject. And the conclusions of demonstration are necessary because they derive from these first principles. Since type (3) definitions are among the conclusions of demonstrations, these too will have this necessity. We have seen that in the case of syllogistic definitions, one part of the essence is an efficient cause that brings about the other part, where the latter is a connection between two items. For example, if it is the quenching of fire that produces the connection between noise and clouds, then the noise in clouds produced by quenching of fire just is what it is to be thunder. On the other hand, in immediate definitions, the formal cause does not produce a connection between two things, but just is, immediately, what it is to be the definiendum. Now, Aristotle's claim is that the premises and the conclusion of demonstration are necessary, and that the necessity of the conclusion is founded on the necessity of the premises. We find, then, that the causality and necessity of immediate definitions are the foundation for the causality and necessity not only of type (3) definitions, the conclusions of syllogisms in which definitions are displayed, but also of type (2) definitions, which I have been calling syllogistic definitions.

One implication of these discussions of necessity is that the necessity of syllogistic definitions will be different from that of immediate definitions. This is because, although it will not be the case that both parts of the cause of the definiendum of a syllogistic definition will be demonstrable, one part will be. This makes syllogistic definitions curious items for Aristotle, neither strictly demonstrable nor strictly indemonstrable, but in any case too demonstrable to be able to act as principles. Their necessity will be at least in part, or in some sense, the necessity

Aristotle might be committed to a conception of a kind as identical with the collection of the members of that species, although this would commit him to a conception of definition that referred to individuals, or at least to groups of individuals. If, then, it is unclear whether he thought that essence could belong by *de re* necessity only to a species or also to its members, it is in part because of the unclarity of the status of essence as universal or particular. This difficulty will be addressed in the next chapter.

of demonstrable conclusions, derived from premises. Immediate definitions, on the other hand, will have the necessity of indemonstrable principles.

III. *Conclusion*

I have been arguing that immediate definitions, as well as syllogistic definitions, include causes. Because definitions must say what something is, these causes are essential causes. The distinction between syllogistic and immediate definitions is founded on a difference in these essential causes. Syllogistic definitions include an efficient cause that is other than the object of the syllogistic definition as well as a formal cause. Immediate definitions, by contrast, include a formal cause which is not other than the object of the definition. This distinction in the essential causes expressed in syllogistic and immediate definitions is further manifested in the different kinds of necessity that Aristotle ascribes to these two kinds of definition. Because the formal cause captured by immediate definitions is not other than the object of definition, the necessity that belongs to such definitions is absolute, rather than derived. The absolute necessity of immediate definitions is one feature that allows such definitions to have the certainty required for first principles, certainty that is non-demonstrable. In the next chapter we will see that the unity that Aristotle maintains characterizes essence is the unity of the object of immediate definition, a unity that belongs to the object precisely because the parts of its essence, which just is its formal cause, are not other than it. That unity is the foundation of the absolute necessity of immediate definitions.

CHAPTER FOUR

DEFINITION AND ITS OBJECT IN THE *METAPHYSICS*

I turn now to definition in the *Metaphysics*. With an understanding of Aristotle's reasons for distinguishing different kinds of definition in *Posterior Analytics* 2.10, we can see that the discussion of definition in the central books of the *Metaphysics* concerns immediate definition. It is clear from what Aristotle himself says about his reasons for discussing definition in the context of an examination of substance that when he speaks of definition in the *Metaphysics*, he is speaking of a causal definition. But I need to demonstrate that the causal definition in question is immediate definition and not syllogistic definition.¹ The aim of this chapter is then to clarify the nature of the objects of immediate definition as simple objects. This should help us to understand why Aristotle is most interested in immediate definition among the kinds of definition he has distinguished, and why he takes the objects of immediate definition to have metaphysical priority over other kinds of object. I want to show that what we learned in the *Posterior Analytics* about immediate definition will help us to understand the central books of the *Metaphysics*, and also that the discussion of definition in the *Metaphysics* expands our understanding of the object of immediate definition and of the immediacy of immediate definition. In other words, these two discussions of definition are mutually illuminating.

In the first section of this chapter I examine the reasons Aristotle gives us for excluding various kinds of complex objects as possible

¹ For another view of the relation between the discussion of definition in the *Posterior Analytics* and in the *Metaphysics*, see David Charles, *Aristotle on Meaning and Essence*, especially Chapters 10–11. I agree with Charles that definitions are structured according to causation, and that this claim links the discussion in the *An. Po.* and the *Metaphysics*, and that definition by genus and differentiae is definition by basic causal feature (pp. 246–247). I differ from Charles in understanding the discussion of the *Metaphysics* to focus in particular on immediate definitions. Deborah Modrak argues that the concern motivating the discussion of definition in *Metaphysics* VII is a concern with establishing the difference between nominal definitions (which she calls “linguistic definitions”) and causal definitions (which she calls “definitions of essence”). See Modrak, *Aristotle's Theory of Language and Meaning*, 147 ff.

objects of definition proper in *Metaphysics* 7.4–5. I want to show that the objects of syllogistic definition are among the objects he excludes. The definitions Aristotle has in mind in the *Metaphysics* must then be immediate definitions, since they are certainly definitions that state a complete cause, and if we eliminate syllogistic definitions the only remaining type of definition that states a complete cause is immediate definition. In the second section of the chapter I try to clarify the precise sense in which the objects of immediate definition are simple; for while they cannot be complex in certain specified ways, they do have parts—more than that, their simplicity depends on them having parts. The discussions of *Metaphysics* 7.12 and 8.6, which both raise and allegedly resolve the issue of the unity of definition and essence, make clear that that unity is provided by a certain relationship between the parts. It is not clear, however, from the discussions of 7.12 and 8.6 just why the parts and the relationship between them can provide the necessary unity and hence simplicity. In the third section of the chapter I elaborate Aristotle's suggestion that the unity of the definition and the essence are like the unity of matter and form in the individual composite substance, to try to see how that relationship could provide a model of simplicity. Finally, in the fourth section, I consider a problem that arises from the claim that the matter/form composite provides a model of unity: if this is the case we might expect the definitions and essences in question to be individuals, and yet Aristotle is emphatic that they are in fact universal. The results of the chapter are then: the definition of the *Metaphysics* is immediate definition, and Aristotle, in discussing definition in the context of his examination of substance as essence in the middle books of the *Metaphysics*, elaborates a conception of immediate definition and its object as simple but having parts.

To introduce the claims about definition in the *Metaphysics*, let us consider first Aristotle's own justification of the discussion of definition at *Metaphysics* 8.1 1042a17–21. In recapping what he has done in the preceding book and explaining why definition was a focus of the discussion of essence, Aristotle says:

Since essence (τὸ τί ἦν εἶναι) is substance (οὐσία) and the account of this [essence] is a definition, for this reason definition and the as-such (τοῦ καθ' αὐτό) were discussed. And since a definition is an account and an account has parts, it was also necessary to know the parts, [i.e.] to know what sort are parts of the substance and what sort are not, and if these are the same [as the parts] of the definition.

At the beginning of this same chapter Aristotle has said that "... the causes and the principles and the elements of substance are sought," (1042a4–6).

His own account of his procedure seems then to be: (1) we are looking for the principles, causes, and elements of substance; (2) substance proves to be essence; so (3) we are looking for the principles, causes and elements of essence. Now, (4) definition is the account of essence; so (5) for this reason we discussed definition. The implication, of course is that the principles, causes and elements of definition (whatever those turn out to be) will be the principles, causes and elements of essence and so of substance. The elements of definition are the parts of definition, and Aristotle seems to assume that just as definition expresses an essence, so too the parts of a definition will express the parts of an essence.

Moreover, (6) since essence is that which is said as-such (7.4 1029b14) and (implicitly) (7) since how essence is said will reveal something of the principles, causes and elements of essence (8) we also discussed as-such predication, i.e. the predication appropriate to definition as the account of essence.

To summarize, Aristotle's argument is that since we are looking for the principles, causes and elements of essence we inquired into the parts of essence [which we might expect to be among the principles, causes, elements]. We did this by asking whether these parts are the same as the parts of definition [which we might expect them to be, given that definition is the account of essence, and that an account should include the appropriate parts of that of which it is the account]. This is because, if the parts of definition are the same as the parts of essence, we can come to know at least some of the principles, causes and elements of essence by coming to know the parts of definition.

These passages suggest, then, that the reason an investigation of definition and its parts will tell us something about essence is that the structure of definition (the parts and perhaps their arrangement) will reflect the structure of essence. At the same time, Aristotle recognizes that it will not always be true that an account of X will reflect the structure of X, and hence that the account will tell us something about the structure or nature of X. That is, it is not the case that *all* accounts of some item are accounts of the essence of that item. Hence, Aristotle restricts what counts as a definition (*ὁρισμός*) of X to the account of the essence of X: "There is an essence of anything the account of which is a definition," (7.4 1030a6–7); and "... in absolute terms,

definition and essence are of substance,” (1030b4–6). Whatever, then, is a definition properly speaking is an account of an essence, and any essence will have as its account a definition.² This presumes that we are in a position to distinguish essences, and the accounts of essences, rather than supplying us with a means of distinguishing accounts of essence from other accounts. How we are to recognize accounts of essences from other sorts of accounts we will consider below in Chapter Five.

If, then, definitions in the *Metaphysics* are accounts of essences, then they must be accounts of certain kinds of cause, namely the formal cause and (in some cases) perhaps also the efficient cause, of that which has the essence in question. And this means that the definitions that are the subject of discussion here in the *Metaphysics* must be causal definitions. Since both immediate and syllogistic definitions are accounts of the cause of what they define, we might conclude that they are the kinds of definition that Aristotle has in mind in the discussion of definition in the central books of the *Metaphysics*. But Aristotle in the *Metaphysics* restricts the object of definition to simple items, and hence restricts definition to immediate definition. For the differences Aristotle has emphasized between definitions that state the causes of simple objects and those that state the causes of complex objects become the foundation for the claim in the *Metaphysics* that definition properly speaking must have as its object something simple. So the doubts of the *Posterior Analytics* with respect to complex objects and their definitions are elaborated in the *Metaphysics*, where Aristotle concludes that the accounts of complex objects are not definitions at all, strictly speaking.

When, in Chapter Two, we considered the objects of immediate definitions in the *Posterior Analytics*, we saw that they were simple (ἀπλῶς) items (in any category) with causes that were not other than themselves. We also saw that syllogistic definitions in the *Analytics* had as their objects composite (ἐπὶ μέρους) items, which had causes other than themselves. Aristotle continues to speak in the *Metaphysics* of simple objects of definition. The question remains whether the simple objects of immediate definition are the same in both the *Posterior Analytics* and the *Metaphysics*, i.e. whether Aristotle has in mind the same thing in

² Of course, Aristotle is sometimes less restrictive as to what will count as a definition, allowing that there may be definition of the matter or of the composite, as well as of the essence, or that coupled terms like “odd number” might be defined in a sense. See *Meta.* 7.5 1031a1–11; 7.10 1035a9–30.

speaking of essence in both works. The question about the object of definition is particularly necessary since in the *Posterior Analytics* Aristotle entertains definitions of compounds of substance and some attribute (e.g. an eclipse of the moon) and compounds of matter and form (e.g. people). If these sorts of items can be defined and if definition is of the essence, then in the *Analytics* compounds can be defined; whereas in the *Metaphysics*, as we will see, Aristotle seems to exclude the possibility of definitions of both such compounds on the grounds that such compounds do not have essences.

My aim, then, in this chapter, is to show that in the *Metaphysics* Aristotle understands the objects of definition to be simple (ἁπλῶς), rather than ἐπὶ μέρους, but also that what it means to be simple has become both more complex and more stringent.

I. *The problem of compounds and coupled items*

Aristotle's own justification of the discussion of definition, as we have just seen, has to do with the importance of definition for understanding essence. In 7.4–5 of the *Metaphysics* Aristotle embarks on a discussion of compounds and coupled items. At issue is whether compounds or coupled items have essences. The question Aristotle poses is whether compounds and coupled items can be defined—if they can be defined, strictly speaking, then they must have essences, and if they cannot be defined then they do not have essences. These chapters thus form part of the discussion of definition. The aim of these chapters is to establish what kind of object can be defined in order to establish what kind of object can have an essence, and hence what kind of object is substance (“But since there are compounds of substance with the other categories ... we must inquire whether there is a definition of the essence of each of them, i.e. whether to these compounds also there belongs an essence, e.g. to white man.” 7.4 1029b23–27).³

The conclusion Aristotle arrives at seems to be that nothing that is compound or coupled (in a technical sense of these terms) can be

³ Modrak, who approaches these chapters with an interest in Aristotle's theory of meaning, says that Aristotle begins the inquiry into substance in *Metaphysics* 7 by setting out the requirements for strict definition, because a definition that is an explanation of a real nature connects the linguistic sign to the object in a way that grounds the intelligibility of the object (Modrak, *Aristotle's Theory of Language and Meaning*, 163).

defined, and that only simple items can be defined. One implication of this is that the objects of syllogistic definition described in *Posterior Analytics* 2 cannot, strictly speaking, be defined, and hence that syllogistic definitions are not, strictly speaking, definitions. This is an implication that I believe Aristotle accepts. Another implication of this conclusion is that no natural object can be defined, strictly speaking, and since many of the objects of immediate definition seem to be natural, that immediate definitions are not definitions either. This is because Aristotle elsewhere appears to identify all natural items with coupled items, so that if coupled items are not subject to definition, then natural items cannot be defined. My contention is that this is not a conclusion he will uphold, precisely because this is not an implication that he is prepared to accept.

Before looking at the problems Aristotle raises in 7.4–5 about the definition of compounds and coupled items, consider the evidence that Aristotle believes definitions must have parts. This is important because if it is clear that Aristotle thinks that definitions must have parts, and that those parts must reflect parts of the object of definition, then he must believe that the objects of definition do have parts. And if he believes that, then we cannot assume that he takes the difficulties he raises in 7.4–5 about compounds and coupled items to be conclusive evidence to show that the objects of definition must be simple in the sense of having no parts. Consider, first, the passage in which Aristotle states most plainly that definitions must have parts: in Book 7 of the *Metaphysics* Aristotle formulates the view that the objects of definition must be essences with parts which have unity: “Since a definition is a formula, and every formula has parts, and as the formula is to the thing, so is the part of the formula to the part of the thing, we are already faced by the question whether the formula of the parts must be present in the formula of the whole or not” (7.10 1034b20–24).⁴ So, simply in virtue of being a kind of formula, a definition must have parts.

Aristotle distinguishes the parts of a definition from the parts of formulae that are not definitions strictly speaking. The distinction is based on the unity that the parts of a definition have, where that unity is

⁴ I will argue below that these essences will be universal rather than particular, against, for example, Michael Frede and Günther Patzig, *Aristoteles “Metaphysik Ζ”*: *Text, Übersetzung, Kommentar*, vol. 1, *Einleitung, Text und Übersetzung* (München: Verlag C.H. Beck, 1988).

derived from the unity of the object of definition. Aristotle arrives at the view that the objects of definition must have parts which have a particular kind of unity as a result of his rejection of various possible objects of definition: individual composites of matter and form are eliminated as objects of definition, on the grounds that one of their components, matter, is unintelligible (ἄγνωστος) as such (7.10 1035b31–1036a9), and on the grounds that such items exist only contingently and that therefore we cannot have knowledge (ἐπιστήμη) of them (7.15 1039b27–1040a1).⁵ And essences that have no parts cannot be defined because definitions are necessarily unities of parts, where the parts of the definition reflect the parts of the essence (7.10 1034b20–24; 8.6 1045a7–14). Finally, eternal items, especially those that are unique (μάλιστα δὲ ὅσα μοναχά—e.g. the sun, the moon, a Platonic Form) cannot be defined because any attempt to do so will produce a formula which either a) includes non-essential attributes, or b) includes attributes which are also true of other items (7.15 1040a28–1040b1). Formulae of the unique are bound to fail in these ways, presumably because a) the very uniqueness of the substance makes it difficult to determine which of its features are essential and which non-essential and b) the demands of the formulation are such that one cannot capture the uniqueness. Now, while the essences of what is enmattered have parts, the essences of what is without matter do not (the reason for this will become clear only when we come to consider the unity of definition). So neither composites of form and matter nor essences which are not enmattered are the objects of definition in the *Metaphysics*.

I have been arguing that Aristotle believes both that there are parts of a definition and hence of an essence, and that those parts have unity. That is, the unity of essences is not the unity of a whole without parts. But this immediately raises a question: if definable essence has parts, why does Aristotle argue in *Metaphysics* 7.5 that neither compound items nor coupled items can be defined because they do not, properly speaking, have essences? In sections II and III below I try to show that the argument against compound and coupled items as definable is intended to make clear that the parts necessary to a definable essence are the genus and the differentia(e) in an immediate definition, and these are not the parts Aristotle considers in 7.4–5. On my view, then,

⁵ The claim that matter is unintelligible is in this context clearly a claim about the matter of individual substances. We should be careful to recognize, then, that the matter represented in the definition will not be the matter of some individual.

the argument of 7.4–5 is intended to show *not* that nothing with parts can be defined but that, on the contrary, the parts of wholes that are definable must be understood to be genus and differentia(e) and these must be understood to stand in a particular relation to one another. Before I make the case that the conclusion of 7.4–5 is not that the object of definition must be simple in the sense of without parts, I want to consider the argument of 7.4–5 in some detail, in order to see just what Aristotle is objecting to in those chapters, if not to the idea of an object of definition with parts.

I propose to examine the argument of 7.4–5 with two ends in mind. The first is to show that Aristotle in these chapters does argue against the possibility of defining compounds of every sort, including those that would count as ἐπὶ μέρους, and that this is a position he maintains throughout the discussion of definition in the *Metaphysics*. The second is to show that the argument in 7.5 against the possibility of defining coupled items might be understood to be an argument against defining the simple items that have been identified as the objects of immediate definition—and hence an argument against the possibility of immediate definition.⁶ This is not, as I have said, a conclusion that Aristotle maintains in other parts of the discussion of definition—but I will defend that claim in the next section.

It is particularly difficult to see what Aristotle intends to conclude in these chapters, because what seems to be the conclusion of 7.4—that only items in the category of substance can, strictly speaking, be defined—is undermined by the discussion of 7.5, which suggests that even substances, if they are enmattered, are ineligible for definition. Aristotle begins in 7.4 by saying that the essence of something is what is said of it as-such (ἐκάστω ὃ λέγεται καθ' αὐτό). But there are some things said of a subject as-such that are not part of its essence; for example, white is not part of the essence of surface (1029b14–18).⁷ The point is that when X is said of Y as-such it will not always be the case that X is part of the essence of Y. For example, in the relation of “white” to “surface” in “white surface” Aristotle claims that “white” belongs as-such to surface, but it is plainly not part of the essence of surface, since

⁶ Aristotle is almost always guarded in his remarks about what can be defined. That is, he allows that *in a sense* just about anything can be defined. So the question is what, in a strict sense, can be defined. See, e.g. 1030a17–18.

⁷ We have already considered this distinction in the discussion of the necessity of immediate definitions (see above, Chapter Three, p. 105).

a surface which is not white will remain a surface. This claim relies on the distinction drawn at *Posterior Analytics* 1.4 73a34–b5:

One thing belongs to another in itself both if it belongs to it in what it is—e.g. line to triangle and point to line (for their substance depends on these and they belong in the account which says what they are)—and also if the things it belongs to themselves belong in the account which makes clear what it is—e.g. straight belongs to line and so does curved, and odd and even to number, and prime and composite, and equilateral and oblong; and for all these there belongs in the account which says what they are in the one case line, and in the others number. And similarly in other cases too it is such things that I say belong to something in itself; and what belongs in neither way I call accidental, e.g. musical or white to animal.

White is not part of the essence of surface although white is said as-such of surface, because white is said as-such of surface in the second sense of $\kappa\alpha\theta'$ αὐτό identified in this passage: “if the things it belongs to themselves belong in the account which makes clear what it is.” That means that white is not part of the essence of surface, but that surface is part of the essence of white (white, as a colour, is such that it can only belong to a surface), and must be mentioned in the definition of white.

At *Metaphysics* 5.18 1022a14–35. Aristotle has distinguished several senses of $\kappa\alpha\theta'$ αὐτό, just as he does in the *Posterior Analytics*. These distinctions are parallel in the two passages, but the characterization of predicates that are $\kappa\alpha\theta'$ αὐτό in the second sense is rather different in *Metaphysics* 5.18. Aristotle says there that the second sense of $\kappa\alpha\theta'$ αὐτό is, “the first subject in which an attribute naturally occurs, e.g. colour in a surface. ‘The as-such’ then, in the primary sense is the form, and in a secondary sense the matter of each thing and the first substratum of each,” (1022a16–19). And, “whatever attribute a thing receives in itself first or in one of its parts, e.g. a surface is white as-such, and a person is alive as such; for the soul, in which life directly resides, is a part of the person,” (1022a29–32). The suggestion is that the reason that, in $\kappa\alpha\theta'$ αὐτό predications of the second sort, the subject belongs in the essence and in the definition of the predicate is that the subject is the “matter” or the “substrate” of the predicate. The sense of matter or substrate here is extended; if a soul is to count as substrate or matter, this cannot be physical matter.⁸

⁸ The examples in the passage at *An. Po.* 1.4 73a34–b5, quoted above, also suggest

It would seem then, that the point of introducing the distinctions among as-such predicates in 7.4 is to make clear that while an essence is what is said as-such of something, this is a necessary but not a sufficient condition for being an essence. We might expect that Aristotle would then go on to tell us what additional conditions will be necessary. That is, if not every sort of as-such attribute is essential to that to which it belongs, then we might expect him to tell us which sorts of as-such attributes *will* count as essences. The discussion of 7.4 seems to abandon this train of thought and to turn to a consideration of the question whether items in categories other than substance, or items that are compounds of substance and some attribute from another category, can have the unity necessary to be defined and hence can have essences. I think, however, that Aristotle is not pursuing a different question in discussing the unity of compounds. Rather, I want to suggest, Aristotle, in taking up that question, is trying to isolate what will distinguish as-such predicates that are essences from those that are not, and so to isolate the kind of as-such predicates that are essential predicates. In insisting on the importance of unity, and unity of a precise sort, in the object of definition, Aristotle is suggesting that as-such predicates with a certain specified unity will be essences strictly speaking.

This, I think, explains why what seems to interest Aristotle here in 7.4 is not so much the $\kappa\alpha\theta' \alpha\upsilon\tau\acute{o}$ relation between subject and predicate in items like “white surface” (although this becomes the focus of the discussion in 7.5), as the compound nature of such items, a compound of a substance (or a substrate more generally) and an attribute from another category (1029b22–27). He addresses the question whether there is in general an essence of compounds ($\sigma\upsilon\nu\theta\epsilon\tau\alpha$), i.e. of some substance and some attribute from another category. Aristotle argues that there is no essence of such compounds, at least no essence distinct from the essence of the underlying substance. The argument is as follows: The essence of something is a “this somewhat” ($\delta\pi\epsilon\rho \tau\acute{o}\delta\epsilon \tau\iota$). But when one thing is said of another, this compound item does not have a “this somewhat” of its own. So when one thing is said of another, the compound item does not have an essence of its own. Now, compounds of substance and some attribute from another category are cases of one thing said of another (e.g. white is said of person). So compounds of substance and some attribute from another category do not have essences. Indeed, *only*

an extended sense of matter or substrate: number and line are “what underlies” for such attributes as even/odd and straight/curved, but they need not be physical matter.

substances have essences (1030a2–6).⁹ Moreover, there are essences *only* of those things the formulae of which are definitions, and formulae are definitions *only* in the case of something primary (πρώτου τινός), where what is primary is what is not said of something else (1030a6–11).¹⁰

We can conclude that entities that are compounds of substance and attributes from some other category do not have essences, and therefore do not have definitions, because they do not have the right sort of unity, i.e. they are one thing combined with another, rather than simple items (1030b6–12). This conclusion is in accord with one of the results of the discussion of what is ἀπλῶς and what is ἐπὶ μέρος in the *Posterior Analytics*: namely, that what is simple, in any category, can be defined immediately, and what is complex cannot be defined immediately.¹¹

At the same time, the claim in the *Metaphysics* that items that are compounds of substance and some attribute do not have essences qualifies some of the claims of the discussion in the *Posterior Analytics*. In particular, it qualifies the claim of *Posterior Analytics* 2.10 that ἐπὶ μέρος items are defined, strictly speaking, by syllogistic definitions. For Aristotle in the *Metaphysics* asserts that definitions of items in categories other than substance will be definitions in a less than strict sense, and that definitions of items “in combination” (if we can assume that these include items which are ἐπὶ μέρος) will be definitions in an even more extended sense—more properly, they will be formulae rather than definitions. The “combination” Aristotle has been discussing, “pale person”, is not a combination of a subject and a predicate which belongs to it as-such in any sense; but he has mentioned the case of “white surface”, where “white” belongs as-such to “surface” in one sense of as-such. This suggests that he considers compounds of substances and attributes which are as-such in the second sense to be similar to cases of compounds of substance and accidents—so that they too would not have essences. And this would imply that syllogistic defini-

⁹ I am accepting Jaeger’s emendation at 1030a2. I should also remark that although strictly Aristotle says that nothing that is said of something else *is* an essence, in order to draw the conclusion he does, he must have meant that no such thing *has* an essence.

¹⁰ Notice that here, again, Aristotle cites the *Iliad* as a formula which is not a definition, although it is identical in meaning with the name “*Iliad*”.

¹¹ As we have seen, what is complex might be a compound of substance and some attribute, or might be an event (given that Aristotle seems to analyze events as cases of substance and attribute).

tions are not strictly speaking definitions, but formulae of some sort, because the objects of syllogistic definition are precisely combinations or compounds of substances and attributes; for example, “produced by quenching of fire in clouds” is said of “a noise in clouds”.¹² The point, then, is that the argument of 7.4 does lead to the conclusion that the ἐπὶ μέρους items of the *Posterior Analytics* do not have essences, and therefore cannot be defined. Syllogistic definitions would not, then, be recognized as definitions strictly speaking in the *Metaphysics*.

Now, one might think that cases in which the combination is one of a subject and a καθ’ αὐτό predicate offer the unity necessary to the object of a definition, and so that ἐπὶ μέρους items if they are such combinations, have the unity necessary to be defined, with the result that syllogistic definitions will be definitions properly speaking. But Aristotle seems to deny that explicitly in 7.5, in denying that things said καθ’ αὐτό in the second sense have essences. So we need to consider the argument of 7.5 in relation to the argument of 7.4, in order to see whether we might find in 7.5 an argument to show that certain kinds of compounds of a subject and a καθ’ αὐτό predicate (namely the compounds that are ἐπὶ μέρους items) offer the unity necessary to the object of a definition. In 7.4, Aristotle introduces all the reasons why one might think that nothing said of something else will have a definition or an essence, because such a thing will always be (implicitly or explicitly) a compound with some substance. In 7.5, Aristotle then considers a particular case, the case of the predicate that is said-of but as such in the second sense, and introduces all the reasons why, although some might think it is a special case of a compound, it is not. So the point of 7.4 is that in general nothing constituted of a substance and some feature has an essence; the point of 7.5 is that even in the case of those features which might seem to form a unity with the substance in question—certain καθ’ αὐτά features—the unity is not sufficient for the possession of essence.

The question posed in 7.5 is whether there will be definitions of those things that are not simple but coupled (τῶν οὐκ ἀπλῶν ἀλλὰ συνδεδυσμένων). These “coupled” items are a sub-class of the “compounds” of 7.4, because they are limited to those items constituted from predicates said καθ’ αὐτά of some substance. Aristotle’s examples include

¹² See Chapter Three, p. 99 and footnote 20 above for the claim that events can be analyzed as substance and attribute combinations.

snub nose, male animal, and equal quantity. These are of particular interest to us because they are the items which correspond to the second sense of “καθ’ αὐτό” set out in the *Posterior Analytics*. The attribute—snub, or male, or equal—is not part of the essence of the subject (nose, or animal or quantity) but the subject is part of the essence of the attribute. For example, while it is possible to make clear what paleness is without mentioning people (where pale person is a compound [σύνθετον]), it is not possible to make clear what male is without mentioning animal (1030b23–26). So in the former case, people are not part of the essence of pallor (which is why pallor cannot be said to belong καθ’ αὐτό to people), while in the latter case animal is part of the essence of male. And pallor is not said as-such of people, but male is said as-such of animal. So the “coupled” items of 7.5 are a distinct sub-class of the compound or combined items of 7.4.

One problem Aristotle identifies with these coupled items is that we must make them clear (i.e. define them) “by addition” (1030b16). This means that we must define them together with the substance or the matter in which they inhere, and not independently of that substance or matter. So, rather than defining snub, or male, or equal, in isolation from the substance in which it inheres, we find that we must define snub by defining snub nose, or male by defining male animal, because of the inseparability of the attribute from the substance. Aristotle has described this problem at 7.4 1029b30–33, in relation to compounds of substance and accidental attributes, although it is in fact more acute in the case of the coupled items under consideration here, since the problem is not just that one *might* make the mistake of trying to define the attribute in conjunction with the substance, but that one will be forced to do so given the peculiar nature of the substance-attribute relation in these cases. So the attribute in a coupled item has a closer connection to the substance to which it belongs, but the inseparability of attribute and substance means that the definition of the attribute is inseparable from the definition of the substance.

A second problem with coupled items is that (a) if, on the one hand, in the case of the snub, a snub nose and a concave nose are the same thing, then snub and concave will be the same thing—but that has to be wrong since snubness is concavity in a nose and not in anything else, so there will be cases of concavity which are not cases of snubness; and (b) if, on the other hand, snub nose and concave nose are not the same thing then either (i) we cannot speak of “snub nose” because we will have an infinite series of nose within nose or (ii) we will be

babbling, saying in effect “concave nose nose”.¹³ And this last possibility suggests that rather than having two parts (the καὶ αὐτο attribute and the substance), coupled items will have multiple parts, making the issue of unity that much more difficult.

The question motivating the two problems Aristotle raises in 7.5 about coupled items is whether such items have the right kind of parts to form a unity. That is, both problems are generated because the parts of coupled items, the elements of the couple, do not together constitute a unity. If they did form a unity they would have an essence, and we would be able to define that essence. That, as the problems reveal, there is no essence to be defined, makes clear that such items are not genuine unities in the sense necessary for definition. The significance of this is only evident when we understand that the coupled items that Aristotle analyzes in 7.5 in terms of their parts might include all natural items composed of matter and form. That is, if all natural items are coupled items in virtue of occurring in matter, and if no coupled item can be defined because no coupled item can have an essence, then no natural item can be defined, strictly speaking, because natural items will not have essences, at least in this strict sense.

Let me elaborate the concern. The evidence that Aristotle believes all natural items are “coupled” in the same sense as snub nose is in a passage at *Metaphysics* 6.1 1025b28–34:

It is necessary to make clear what the essence and the formula [of the essence] are like, since without this the inquiry is futile. Of things that are defined and of essences, some are like the snub but some are like concavity. These are different because snub is comprehended (συνελημμένον) together with matter (for the snub is a concave nose), but concavity [is comprehended] without perceptible matter. If, then, all natural items are spoken of in the same way as the snub, for example, nose, eye, face, flesh, bone, animal generally, leaf, root, bark, plant generally (for the formula of none of these is without motion, but always has matter),

¹³ For another account by Aristotle of this dilemma, see also *Sophistical Refutations* 13 and 31. Balme’s account of this dilemma in the *Metaphysics* is helpful: “... therefore *snub nose* either cannot be said or will be the same thing said twice; 33–35 (taking the second horn first): for, accepting that the snub is concavity-in-nose, it follows that *nose-that-is-snub* is *nose-that-is-nose-that-is-concave*; hence it is absurd that the essence should belong to such things; 35–1031a1 (first horn): but if not (i.e. if we abandon the equation *snub* = *concavity-in-nose*, and return to the starting point that snub cannot be said without nose), then it will go on to infinity; for (*scil.* if there is a nose in the snub, there will be a second nose in the snub nose, and) there will be yet another nose in the nose that is a snub nose ...” D.M. Balme, “The Snub,” *Ancient Philosophy* 4 (1984): 4.

then it is clear how it is necessary in the case of natural items to seek out the essence and to define [it], and why [it is necessary] for the physicist to consider some soul.

The context of these remarks is an argument to the conclusion that natural science is a theoretical, rather than a practical or productive, science. That argument follows the claim that the special sciences (as opposed to first philosophy²) do not prove the existence of the kind (γένος) that it takes as its object. More generally, there is no demonstration of substance or essence, but “some other way of revealing it” (1025b15–16). The point seems to be that we cannot expect the study of being *qua* being to undertake a demonstration of the existence of being *qua* being. And the point of the argument to show that natural science is theoretical is to distinguish this theoretical science from others, according to the object of each.

If all natural items are like the snub in the sense that they cannot be understood without matter, just as snub cannot be understood without nose, then the essences of natural items are some coupling of form and matter, just as the essence of snub is some coupling of concavity and nose, i.e. there are no essences strictly speaking of natural items. And if there are no essences then there are no definitions of natural items, because they are enmattered. So if we take the outcome of *Metaphysics* 7.4 and 7.5 to be conclusive, it seems to suggest essences which are enmattered cannot be defined. But three kinds of evidence tell against this conclusion. First, the matter in question is “perceptible matter”. That is, “to be spoken of in the same way as the snub” is to be such as to be comprehended with perceptible matter, which has to be individual matter. This suggests that individual natural items might be “coupled”, but not necessarily that natural kinds are necessarily “coupled”. Second, the most common examples of the objects of immediate definition include natural items (e.g. man). Third, Aristotle’s account of the unity of definition and its object relies on the inclusion of something that has being potentially, as does matter. And essences the parts of which will include matter or potentiality are likely to comprise the essences of natural items. So we cannot accept the conclusion that no natural items can be defined without further consideration.

Before proceeding, I should say that we ought to be cautious in the interpretation of this passage from *Metaphysics* 6.1 for two reasons. First, Aristotle puts the point in a tentative way. He does not commit himself here to the claim that no natural thing can have an essence because

any natural thing is like the snub, but only suggests it as a possibility. And there is reason to think that he does not believe it to be true; he immediately goes on to speak of the essences of natural objects (“... it is clear how we must seek and define the essence in the case of natural objects”). Second, we should be careful to notice that the passage suggests a parallel between items like snub and natural items in only one respect: both have essences which are somehow bound up with matter; this leaves open the question of the relation between matter and the other part(s) of the essence. That is, it might not be Aristotle’s intention to identify natural items as coupled items; he might mean to say only that there is a resemblance between natural items and coupled items insofar as the structure of each involves a relation to matter. There is then evidence to suggest that Aristotle believes that natural items are in an important sense coupled items, and there is evidence to suggest that he believes that coupled items cannot be defined and hence cannot have essences because their parts do not have the requisite unity. At the same time, I have been suggesting that there is evidence to indicate that Aristotle, while he takes seriously the arguments for believing that no coupled item and hence no natural item can be defined because none can have an essence, does not take the results of 7.5 to be conclusive, and that he intends to show that essences which are enmattered can be defined.¹⁴

I think that we have to try to reconcile the concerns raised in 7.4–5 with an account of essence as both constituted by parts, and as a unity. So the question is whether any essence can both have parts (making it such that it can be defined) and yet form a unity (making it a single essence that can be captured by a single definition). The answer to this question lies in Aristotle’s attempts to argue that definition (in a strict sense) and the objects of this definition are unities in virtue of the relation between their parts, a relation that he characterizes as a relation of entailment, or a relation between the potential and the

¹⁴ Balme offers a solution very different from the one I outline below. He takes the passage at the end of *Meta.* 8.6 to offer a reply to the aporia of *Meta.* 7: “... if an object is considered as a moment, and not as in the process of changing, it has no matter; what was its matter has been determined *so* at this moment and can therefore be described formally, while its potentiality for further change does come into the question at this moment.” (“The Snub,” 5). In other words, he argues that Aristotle resolves the difficulty by claiming that one can define individuals, so long as one defines them without matter. This solution strikes me as wrong-headed, since the motivation for defining individuals, as well as the difficulty, is to include matter somehow in what it is to be something.

actual. The entailment of one part by another, and the actualization of one part by the other, are both relations that obtain between differentia and genus, which are what Aristotle will introduce as the parts of definition and of essence. The relation between differentia and genus in a definition or an essence is quite different from the relation of a substance and its attribute (even, or especially, an as-such attribute). Aristotle has to explain just what that difference is in order to convince us that there are essences, and hence definitions, of items which are enmattered. In order to see how essences can be defined, we will need then to look at the relation of entailment in the parts of definition and the relation of actuality and potentiality in the parts of its object, relations which Aristotle explores in *Metaphysics* 7.12 and 8.6.

II. *The unity of the definable form and of the definition*

As we have seen, the problems raised in 7.4–5 concern the unity of the definable form and of definition. They make clear that not every item will have a definable form or essence, and that only items which have a certain unity will have a definable form. So, the items that are “defined” syllogistically do not have essences, and cannot be defined strictly speaking. And 7.5, as we have seen, raises the question whether even the simple items that are defined by immediate definition are definable, strictly speaking. But 7.4–5 does not tell us much about the items that have the right sort of unity, which is why it is difficult to settle the question whether simple items do have the right sort of unity if we rely only on 7.4–5. It is at 7.12 1037b8–12 that Aristotle turns to the task of saying something positive about definable form and its definition. He announces that he will take up an *aporia* raised but left unresolved in the *Analytics*, the resolution of which should help with the work of the inquiry into substance. This *aporia* is: why is “that the formula of which we call a definition” one? Why, that is, do the genus and differentia in the definition, for example, of person (“animal” and “biped”) constitute one thing, a unity, rather than two things (1037b13–14)? The connection with the problems raised in 7.4–5 is this: if those problems suggested that nothing with parts, and in particular nothing enmattered, could be defined, Aristotle is now proposing that by reconstruing what count as the parts of an essence we can see how those parts form a unity. Reconstruing the parts involves seeing them as genus and differentia(e) rather than as substance and attribute (as-such or otherwise).

Before I discuss Aristotle's answer to the *aporia* posed at 1037b13–14, I want to ask what motivates this question about the unity of the parts of definition in 7.12. We find evidence in both the *Analytics* and in the discussion pursued in 7.4–5 that it is a concern about Platonic doctrine (a concern mentioned above, Chapter One, pp. 31–32).

In the *Posterior Analytics* the question is raised at 2.6 92a27–32, in a discussion of division and demonstration: “And in both cases—when you prove according to a division and when you prove with a deduction in this way—there is the same puzzle: why will a person be a two-footed terrestrial animal and not animal and terrestrial? For from what is assumed there is no necessity that what is predicated should become a unity, but it is as if the same person were musical and literate.” This passage forms part of an attack on Platonic division as a method of arriving at definitions. The point is that the Platonist in dividing, say, animal into terrestrial and non-terrestrial, and then dividing terrestrial into two-footed and four-footed, has not given us any reason to suppose that in the definition that results the parts form a unity. This last remark—the reference to a person who is both musical and literate—echoes one of the concerns we have just been examining, expressed at *Metaphysics* 7.4 1029b21–22. That concern is that, if to be a white surface is the same as to be a smooth surface, then to be white and to be smooth will be the same. That is, just as there is no unity between the musical and the literate although both may belong to the same person, so too there is no unity of the smoothness and the whiteness that may belong to the same surface. The point is that unity is not conferred on two things in virtue of their common possession by some third thing. In relation to the passage from the *Analytics* under consideration, this means that animal and terrestrial do not form a unity in virtue of their common possession by persons (although they may form a unity for some other reason, and indeed Aristotle sets out to discover the reason for their unity)—rather, the unity of persons depends on the unity of animal and terrestrial.

In both the *Analytics* and the *Metaphysics*, the worry with respect to unity in Platonic definitions is twofold. First, there is the concern about the method of division as practiced by Platonists, as suggested by the passage from the *Analytics*: without Aristotle's reforms, why should we believe that the definitions produced by the method, and hence the essences of which those definitions are the formulae, are one? In 7.4–5 Aristotle, as we have seen, is calling into question the possibility of defining anything that is not unified (whether “compounded” or

“coupled”). We can understand this as a preliminary in an attack on Platonic division as a method for arriving at definitions of essences. That is, as we have seen in Chapter One, Aristotle seeks to reform Platonic division in part because he thinks it offers no guarantee of the unity of the different terms. Here in the *Metaphysics* we see a different aspect of Aristotle’s dissatisfaction with Platonic method. If the terms of a definition do not have unity, then there is no guarantee of the unity of the essence defined, i.e. no guarantee in such a case that the object of definition actually is an essence. If we understand this as a criticism of Plato, it is clear that Aristotle has to provide an account of definition and its object as manifesting the appropriate unity. Hence Aristotle introduces at 7.5 1031a7–10 the possibility of some other way to define—other, that is, than the Platonic method of division—suitable for coupled items (e.g. “odd number”). Whatever this other method should turn out to be, it must be some form of division (since we know that Aristotle advocates division as the method for arriving at definitions) that results in definitions constituted by genus and differentia(e).

Second, there is Aristotle’s concern about the metaphysics of participation. At *Metaphysics* 7.2, after remarking that Plato posits three sorts of substances—Forms and mathematical objects as well as sensible substances—Aristotle, in listing the questions with which the inquiry will be concerned, includes two which seem aimed at the Platonic conception of substance: whether there are any substances other than sensible substances, and whether there are any separable substances (7.2 1028b19–21; 28–30). This leads to the second of the worries about Platonic doctrine in the formulation of definitions—the concern about participation: if the essence of X is Y and Z, which are separate and distinct Forms in which individuals somehow participate, then why do these individuals have one essence, rather than two, or why are they one thing rather than two? To avoid this worry, Aristotle adopts a method of division that requires that one divide by genus and differentia. He can then argue that genera do not participate in contraries at the same time, and hence that the relation between genus and species cannot be one of participation (μετέχειν) (7.12 1037b18–21).¹⁵

¹⁵ Aristotle suggests in this same passage (1037b14–18) that the relation between animal and biped is in this respect unlike the relation of pale and person, in that a pale person does participate in the pale, whereas animal cannot participate in the biped; and that a pale person therefore has a unity that the biped animal does not. The point

These then are the concerns motivating the *aporia* about the unity of the parts of definition introduced by Aristotle at 7.12. I turn now to the *aporia* itself. Let me first elaborate the question about unity as Aristotle poses it. At 7.12 he argues: The definition is a formula of substance. Substance is a one and a “this”. Therefore, the definition is a formula of some one thing. The definition is a single formula (i.e. a formula with unity). Therefore all the elements in a definition must be one (1037b23–27). This argument is intended to make clear that if Platonic division, and the relation of participation that obtains between the parts of the definition that result from Platonic division, do not guarantee the unity of the definition, then that method must be inadequate for the formulation of definitions, and the relationship of participation inadequate to explain the unity of the object of definition. So the question is, what is the unity that unites the parts of a definition and hence constitutes the object of definition, the essence?

Aristotle’s claim is that the unity of definable forms and of definitions is not like the unity of “pale person” (a unity which he has already of course disputed in 7.4, and which we know to be insufficient for essences and definitions). It is not that sort of unity, because that sort is produced when one of the items participates (μετέχειν) in the other, e.g. when person participates in pallor. But a genus cannot share in its differentiae, in the way that a substratum can share in some accidental attribute. This is because, if a genus were to share in its differentiae, it would share in opposites at the same time (e.g. footed and non-footed); but that is impossible, so genera cannot share in their differentiae, and the unity of genus and differentia cannot be like the unity of person and pallor. Moreover, even if we assume that the differentiae are not contraries, i.e. if we assume that we have already performed a division and have selected out only those differentiae on the same branch (e.g. footed, two-footed, featherless, etc.), the problem remains. This is because, as we saw in Chapter One, we still have no account of the unity of these differentiae: why should featherless and two-footed form a unity with animal? Moreover, their unity cannot be a function of belonging to the same thing, since on that principle their unity could only be the accidental unity of any set of attributes (e.g. musical and literate, or musical and pale). So the unity of genus and differentiae

is surely that the biped animal cannot have this kind of unity, a unity that we know Aristotle thinks is fragile at best, a unity that in 7.4 he has argued is insufficient for definition.

must be a unity adequate to explain the unity of multiple differentiae with a genus.

Aristotle provides two solutions to the problem of unity, one here in 7.12, based on the method of division and his reforms of that method, and the other in 8.6, based on the distinction between potentiality and actuality. They are in fact two ways of representing the same solution, and I propose to examine each, in order to see whether they jointly make clear how the unity of the parts of a definition and the unity of the parts of the object of that definition can account for the oneness of differentiae and genus.¹⁶

We might begin by asking what kind of unity is possible for the parts of definition. If we look to the discussion of the one in *Metaphysics* 5.6, we see that most basically Aristotle distinguishes between that which is one by accident and that which is one as-such (1015b16–17). Accidental unity belongs to combinations of substance and accident (e.g. Coriscus and musical). This kind of unity has been excluded by Aristotle as inappropriate for the parts of definition in the discussion of compound items in 7.4. While as-such unity, on the other hand, looks more promising as the unity of the parts of definition, it comprises many types, none of which belong in any obvious sense to the parts of definition. Aristotle distinguishes (i) the unity of the continuous (συνεχῆ) at 1015b36–1016a1, later at 1016b11–13 qualifying this sense of unity with the requirement that a continuous quantity must be a whole (i.e. have one form) in order to be a unity; (ii) the unity of those things the substratum of which is undifferentiated (e.g. wine is one, and water is one, and more generally all liquids are one); (iii) the unity of those things which share a genus (e.g. the species of the genus animal are one because all are animals); (iv) the unity of those things which have the same formula—these are presumably the members of a species (Aristotle says, “especially those things which are substances”). In summing up the distinctions he has drawn Aristotle claims that there are four kinds of unity: in number, in species, in genus, and by analogy. To be one in number is to have one matter (this seems to cover both (i) and (ii)); to be one in species is to have the same formula (as in (iv));

¹⁶ For the view that 7.12 and 8.6 are addressing two different problems (7.12 the problem of the unity of the parts of definition and 8.6 the problem of the unity of form and matter in the individual, where these are taken to be importantly different) see E. Halper, “*Metaphysics* Z 12 and H 6: The Unity of Form and Composite,” *Ancient Philosophy* 4 (1984): 146–158.

to be one in genus is to have the same “figure of predication” (ἀντὶ σχήμα κατηγορίας) (this corresponds to (iii));¹⁷ to be one by analogy seems to be a new sense. Aristotle says that to be a unity is always to be indivisible, either in quantity or in kind (5.6 1016b23–24). The parts of a formula cannot be indivisible in quantity since they are not themselves quantities, and so must in some sense be indivisible in kind.¹⁸

The parts of a formula, the genus and differentia, must then be one in kind. While I think this passage is useful in making clear that the unity of the parts of immediate definition must be as-such unity, and a unity of kind rather than quantity, I do not think we can identify the unity of definition with any of the kinds distinguished here. The reason may be that these kinds of unity all presuppose discrete parts that form a unity, e.g. discrete bits of water all of which are water, discrete members of a species that unite to form that species, discrete species that together constitute a genus, discrete bits of wood that, when continuous, form a structure. And Aristotle’s understanding of the unity of genus and differentiae in an immediate definition involves precisely denying that the parts are discrete, as we will see.

Consider the first of Aristotle’s solutions to the problem of the unity of definition and the object of definition. At 7.12 1037b29–1038a36, as we have seen in Chapter One, Aristotle sets out some requirements for the method of division which he suggests will account for the possibility of the unity of the terms of definition (7.12 1038a25–28). In divisions, he says, we arrive at genera marked off by certain differentiae and divided by further differentiae. The definition can be stated in two or more terms: the first genus and one or more differentiae. It makes no difference whether we state one or more differentiae only because we will have divided the differentiae by their own appropriate differentiae, e.g. we will have divided footed animal into cloven-footed and non-cloven-footed, and not into feathered and featherless. In other words, so long as we practice successive differentiation, the problem of unity

¹⁷ Ross and Kirwan both take this phrase to mean “the same category”; Ross cites Bonitz as suggesting that we might treat genus not as co-extensive with category, but rather as constituted of “the things to which the same predicate is attributed”. 1024b12–16 supports Ross’s interpretation, indicating that a genus is a category and not some sub-division of a category. See W.D. Ross, *Aristotle’s Metaphysics: A Revised Text with Introduction and Commentary*, vol. 1 (Oxford: Clarendon, 1924), 304–305; Christopher Kirwan, *Aristotle’s Metaphysics Books G, D, and E* (Oxford: Clarendon, 1971), 139.

¹⁸ Aristotle insists that a formula is always divisible as such (1016a34–35). I take it the “as-such” in this passage means, “as a linguistic formula”, and in this sense it is divisible as a quantity.

is partly solved, since the genus and differentia(e) will not then stand in the same relation to one another as musical and person, precisely because the differentiae will entail the genus, whereas musical does not entail person. But there is a second requirement: we must continue the division until there is a species without further differentiae. This is just the requirement of completeness. If we follow these guidelines, says Aristotle, the last differentia will be the form and the substance.

This suggests that the problem of unity will be resolved because in effect what seems to be two is really one: unlike, say, person and musical, animal and cloven-footed just are one, and the evidence for that oneness is that cloven-footed entails animal. Notice that the entailment relation by itself cannot guarantee unity; if it could, then snub noses, female animals and odd numbers would all have the requisite unity, since in these cases “snub” entails “nose”, “female” entails “animal” and “odd” entails “number”; but we know from 7.5 that Aristotle does not think such items have the same unity as substances. If, then, some entailments do not guarantee the kind of unity required for definition, what kind of entailment does provide that guarantee? The answer lies at *Metaphysics* 10.9 where Aristotle argues that there are contraries (e.g. male and female in the case of animal) that belong to a genus as-such (unlike such accidental contraries as dark and pale with respect to animal) and yet do not divide that genus into species. This is because some as-such contraries (e.g. male and female) belong to the compound material thing, while others belong as-such to the formula of the genus (1058a37–b3). Since differentiae do divide a genus into species, differentiae clearly must belong to the formula of the genus, rather than to the compound material thing. And so although both certain necessary attributes (male/female with respect to animal, odd/even with respect to number) and differentiae belong to a genus as-such, and hence entail that genus, they do not belong as-such in the same way. This means that it is not because an attribute entails a genus that the attribute and the genus form a unity of the sort necessary for essence and definition; it is rather because an attribute entails a genus *because* it belongs as-such to the formula of that genus that it will form a unity with the genus of the sort appropriate for essence and definition.

This solution to the problem of unity proposed in 7.12 is not entirely satisfactory. To suggest that the entailment relation between the differentia and the genus resolves the problem of unity does not seem to take into account that what will need to be a unity is not simply one differentia and the genus but rather several differentia and the genus; and

the several differentia will not entail one another (as we have seen in Chapter One) since the completeness requirement is not simply a question of following every branch of the differentiae to the end, but also of specifying all the primary differentiae in the first instance; and what makes each a primary differentia is that it does not entail any of the others. I will consider this difficulty with the proposed solution to the problem of unity below.

Let me turn now to the second of the solutions Aristotle offers to the problem of the unity of definition. Aristotle begins 8.6 by asking again what it is that causes definitions (and numbers) to be one. This is a return to the problem of 7.12. Anything that has parts and is not a mere heap must have a cause for its unity.¹⁹ The immediate answer to the question why the parts of definition form a unity is that a definition is the formula of one thing rather than a formula of a group or heap or series of things (1045a12–14). (The *Iliad* is once again an example of a formula of something that is not itself one.) That is, the unity of definitions is a function of the unity of their objects. The question then, says Aristotle, is “Why is a person one thing rather than an animal on the one hand and biped on the other?” He seems to believe that the question itself is misguided; that to ask how the parts of something form a unity is to presuppose that they exist separately, that, for example, Animal Itself and Biped Itself exist separately. His attempt to resolve the problem is then of course also an attack on a theory of separate Forms, since it is such a theory that gives rise to the view that the parts of substances like persons might exist separately prior to the substances themselves. The origin of the problem, then, as Aristotle sees it, is the supposition that the parts into which a substance can be analyzed are prior to and separate from any particular instantiation of those parts. If one does not proceed from this supposition, there is, according to Aristotle, no difficulty: there is matter on the one hand, form on the other, and the first is potentially, the latter actually, so that the problem of their unity is a false problem (1045a23–25).

It is not immediately clear how this is supposed to dissolve the difficulty. It might seem to be simply a denial of the difficulty, by stipulating that there is no problem about the unity of the two parts because there are not two parts. But this is not quite what Aristotle intends. He does not deny that there are parts, but denies that the parts

¹⁹ While Aristotle typically uses definition to explain substance in Book 7, in 8.6 he uses substance to explain definition.

are separated or separable in fact. Matter is identified with potentiality, form ($\mu\omicron\sigma\phi\eta$) with actuality. Each of these seems to be identified with some part of the substance. The comparison is made with “round bronze” where bronze is said to be the matter or the potential part, and round the form or the actual part (1045a26). Understanding the parts that form a unity to be matter and form, and using this example, help Aristotle to reject the understanding of parts as independently existing entities separate from the unified substance. The dissolution of the problem only becomes clear when Aristotle asks the question, what *causes* something that is potentially X to become actually X? Becoming *actually* X would then seem to be equivalent to becoming a unity of potentiality and actuality. The answer to this question is, in the case of things that are generated (and, presumably, insofar as they are generated), the agent, i.e. the efficient cause, which Aristotle here identifies with the formal cause (1045a30–33). If parts are to form a unity they must then be analogous to form and matter, and must in fact be a unity, either potentially or actually.

The connection between the solutions of 7.12 and of 8.6 to the problem of unity is the identification of the genus in the definition with the matter in the thing, through their role as potentially what the whole is actually. The difference in the approaches of 7.12 and 8.6 is the difference between thinking of the parts of definition in their logical relation to one another, as genus and species, and thinking of the parts of definition as representing the parts of the object of definition, i.e. the parts of the essence, in which case the relation between the parts is analogous to the relation between the parts of the composite substance: matter and form. The claim that the genus in a definition represents the matter of the kind, together with the claim that the unity of the definition is a function of the relations between genus and differentia(e) suggests that rather than being an obstacle to unity, the presence of matter, or of something that represents matter, in the definition is a necessary requirement for unity. But this seems to be in contradiction with the results of 7.4–5. How do we reconcile this tension?

In the following two sections I will be arguing, first, that Aristotle must introduce matter into the essence of natural things, and introduce it as represented by the genus in the definition, since both the genus in a definition and the matter of a kind are being potentially. This is not novel; but my intention is to show that Aristotle introduces the genus not as perceptible, and individual, matter, but as universalized and relatively indeterminate matter. Moreover, the unity of the essences

of natural kinds will depend not only on the potentiality of one part (represented by the genus), but also on the other part of the definition, the differentia(e), representing attributes that belong as-such to the form (and not the matter) of the genus. Aristotle makes that claim, I propose, in order to distinguish the relation of the parts of definable form as a relation of genuine unity from the relation between the parts of non-definable items, the coupled and combined items of 7.4–5. Having shown that the genus represents matter in its potentiality, and that this guarantees the simplicity of definable forms by guaranteeing their unity, I will then show that the definable forms of the *Metaphysics* must be universal, in order to be causal in the way required in the *Analytics*.

III. *Matter in the definable form*

I want now to consider how and why Aristotle hopes to introduce matter into the definition in order to guarantee the unity of the parts of definition, despite two apparent problems with including matter. The first is that matter as such is unintelligible (*Meta.* 7.10 1036a8–9), so that Aristotle will have to argue for a way of introducing matter without thereby introducing an unintelligible element. But, again, matter is unintelligible only insofar as it is individual and perceptible; so nothing prevents the introduction of some universalized matter into the definition. The second problem with including matter is that doing so might seem to run the risk of producing parts (of essence or definition) that can only constitute compound or coupled items, and so to encounter all the difficulties discussed in 7.4–5. I have suggested above that the results of 7.4 and 7.5 are not intended to apply to all natural items, despite the evidence of *Metaphysics* 6.1 1025b28–34, i.e. the evidence to suggest that Aristotle believed that all natural items were coupled items. That is, it is not Aristotle's view ultimately that the essence of nothing natural (nothing which necessarily includes matter) could be defined. Recall that the concern with natural composite substances was that they had the same structure as items like the snub, namely that they were not unities of the appropriate sort for definition, but coupled or combined items of some sort. The problem was that the relation between form and matter in the case of natural composite substances seemed to be like the relation between snubness and the matter (nose flesh) in which it inhered, so that if matter is necessary to such substances then they fail to have the unity requisite for definition. This failure of unity was the reason

Aristotle offered us in those chapters for the impossibility of definition: if the item does not have unity, then it does not have an essence (at least in the strict sense) and hence it cannot be defined (strictly speaking) since definition is possible only in the case of essences. If, then, it turns out to be possible to define natural composite substances, it will have to be because they do have essences and that will be because their species form, defined by genus and differentia(e), does have the right sort of unity. So Aristotle's task is to show that such substances are unities, thereby that such unities have essences, and thereby that such items can be defined.²⁰

The unity that the essences of natural composite substances possess will of course have to be different from the unity of either the coupled or combined items of 7.4–5, which could not be defined. I have already suggested that Aristotle can distinguish the unity of the essences of natural composite substances by appealing to a distinction between attributes that belong as-such to the matter and attributes that belong as-such to the form. My aim in this section is to show how Aristotle uses this distinction to argue for the unity of the essences of natural composite substances, thereby giving content to the notion of a simple item in the *Analytics*, while allowing that these simple items are now restricted to the category of substance. The unity of essences depends on the relation between the parts of the essence (and hence the parts of the definition) being analogous to the relation between the parts of a composite substance. In Chapter One (p. 37 above), I suggested that Aristotle differs from Plato in his understanding of εἶδος as the object of definition, where that difference is represented precisely by the introduction of matter into definable form. Aristotle needs then to show that the parts of essence include something like matter, while explaining why the inclusion of such a part does not threaten the intelligibility of the definition.

²⁰ There is controversy over whether the object of definition is the compound (of form and matter) or the form of that compound. See, for example, Frede and Patzig. The formulation of the object of definition may be variable; Aristotle says that to define X and to define the essence of X is the same thing, (*Meta.* 7.6 1031b12–14; 1031b31–32a2).

i. *Reasons for including matter somehow in definition*

Before considering the role of the genus as matter in definition, and how that is supposed to guarantee the unity of the definition, let me say something about what motivates Aristotle to include matter in the definition. We are faced with two questions. The first is: what are the reasons Aristotle has for including matter? The second is: can he account for the inclusion in such a way that the unintelligibility of matter does not present a problem?

I turn to the first of these questions, Aristotle's positive reasons for including matter in definition. I have already mentioned one reason why we might suppose that Aristotle intends to reject the conclusion of 7.4–5 that nothing with the structure of snubness, where natural compounds of form and matter seem to have just such a structure, can have an essence or be defined. That reason is: if the essences of natural items cannot be defined, then it is not at all clear what can be defined. If the arguments against coupled and compound items in 7.4–5 are intended to demonstrate that only utterly simple items (without parts of any kind) can be defined, it is very strange that Aristotle explicitly excludes utterly simple items without parts of any kind as objects of definition (at 7.10 1034b20). The rejection of utterly simple items as objects for definition suggests that there must be something with parts that is definable, and natural items in the category of substance have the best claim to the appropriate sort of unity. That claim, paradoxically, is founded on the necessity of matter in the essence of natural items. We cannot formulate the account of the essence as distinct from the matter in natural items in such a way that it remains the essence of the thing in question. This is because if the definition takes as its object whatever is immaterial in a compound of matter and form, then the definition cannot be adequate in the case of natural substances that are necessarily material.²¹ So the reasons to believe that Aristotle thinks we can define natural items are (i) that natural items have matter in their essence, and (ii) that Aristotle has argued in 7.12 and 8.6 that the genus represents the matter, and that the presence of matter is what guarantees the unity.

²¹ The problem will be more acute if there are matter/form compounds that necessarily involve certain *kinds* of matter. If, for example, people are necessarily not simply material beings, but beings the matter of which must always be just this sort of flesh and blood, then this sort of flesh and blood will, it seems, have to be mentioned in the definition.

There are three more indications that Aristotle intends to allow for the introduction of matter into definable essence in the case of natural kinds without thereby aligning them with coupled or compounded items. The first is that Aristotle draws an analogy between the form and matter in sensible individual substances and the parts—the genus and differentia(e)—in a definition (8.6 1045a23–30; see also 5.28 1024a36–b9). One might infer from this that a definition is supposed to express by analogy the form/matter relation in sensible substances, thereby acknowledging the necessity of matter to the essences of sensible substances. The second reason for supposing that Aristotle will reject the results of 7.4–5 with respect to natural items is that if natural items cannot be defined, then the definitions of demonstrative science that function as first principles will not include definitions of natural items, and this will severely restrict the domain of demonstrative science, and restrict it in ways that do not seem to reflect Aristotle's practice in the *Analytics*. A third reason is that, if Aristotle in the *Metaphysics* is rejecting the possibility of immediate definitions of essences with parts, then he is abandoning the theory of definition he developed in the *Analytics*, which depends crucially, as we have seen, on distinguishing correctly the parts in the object of definition.

I have been discussing Aristotle's reasons for recognizing matter as one of the parts of simple items, and for therefore including matter in some way in immediate definitions. The problem is how to construct definitions adequate to the essences of items which are necessarily material without either including what is unintelligible in such definitions, or attributing false unity to that which is defined. To resolve this problem, we need to look first at Aristotle's distinction between parts of the form and parts of the matter, and then to consider in what sense the genus in the formula represents the matter of the kind. The distinction between parts of the form and parts of the matter is important to this discussion because it is clear that Aristotle wants to exclude parts of the matter altogether from the essence. So one way to pose the question is to ask how Aristotle can incorporate matter somehow into the parts of the form, while excluding the parts of the matter. In order to answer that question, we must consider what he has to say about the parts of matter and just why they must be excluded from essence and hence from definition.

ii. *Parts of the matter and parts of the form*

At 7.10 1035b31–33 Aristotle distinguishes three kinds of parts: parts of the form or essence, parts of the composite, and parts of the matter.²² He is engaged in answering the question, whether the formula of the parts must be present in the formula of the whole (7.10 1034b22–24). The answer to this question depends on the distinction between different kinds of parts. It turns out that “part” is said in many ways; and while the formula of some of the parts must be present in the formula of the whole, it is not the case that the formula of the parts in every sense must be present in the formula of the whole. One way is “that which measures with respect to quantity” (1034b33); this clearly refers to the parts of matter (which will also be parts of the composite). For example, flesh is a part of snub, but it is not a part of concavity, just as bronze is part of the individual statue but not of the statue as form (1035a1–6). This suggests that snubness is to concavity as the individual statue is to the statue as form: snubness and the individual statue are composite individuals, and concavity and the form of the statue are the forms of those composite individuals.²³ It is characteristic of material parts that they are those parts into which composites (those things in which the form and matter are taken together (e.g. the snub, the bronze circle)) are resolved (1035a25–27). This means: if you were to take the composite and chop it up, material parts would be the result. By contrast, the parts of the form cannot be discovered or isolated by “resolving” or dividing the composite. Moreover, material parts are posterior [to the whole], whereas parts of the substance and of the formula are (some or all) prior [to the whole] (1035b11–14).²⁴ The notion of priority and posteriority here is a causal notion; parts that are prior to the whole are prior because they are causally responsible for the whole. As an example of parts of the form, Aristotle suggests the letters (considered as

²² The text here is uncertain. Bonitz adds the phrase, “καὶ τῆς ὕλης,” which makes the distinction threefold, among parts of the form, parts of the composite of matter and form, and parts of the matter. Whether Aristotle distinguishes parts of matter from parts of the composite of matter and form does not seem to have philosophical importance.

²³ Although, as we have learned from 7.5, it is not clear that the snub is simply an instantiation of concavity, or rather that concavity by itself is the form of snub, since the snub cannot be instantiated in every kind of matter.

²⁴ Aristotle also allows that some parts may be neither posterior nor prior to the whole—those which are most authoritative or determining (κύρια) and in which the formula and the substance are immediately present, e.g. the heart in the case of a person (1035b25–27).

non-material) of a syllable.²⁵ The parts of the form together constitute the formal cause of that which they inform, and the linguistic formula of the parts constitutes a kind of mereological explanation of the item (see above, Chapter Three, pp. 100–101). So the answer to the initial question is: the formula of the parts of the form must be included in the definition of the whole; but the formula of the parts of the matter need not be included. And this discussion makes clear that the reason the formula of the parts of the matter is not included is that those parts are posterior. Their posteriority precludes such parts from being causally responsible for the whole; and we exclude them from the definition precisely because they do not explain what it is to be the whole. Parts of the form, on the other hand, precisely because they are prior to the individual, do explain what it is to be that whole.

The next chapter, 7.11, opens with the question, “Which parts belong to the form and which to the composite (1036a26–27)?” The answer to this question is important since, “... if this is not clear, it is not possible to define a thing; for a definition is of the universal and of the form. If, then, it is not evident which kinds of parts are parts as matter and which are parts not as matter, neither will the formula of the thing be evident,” (1036a28–31, trans. Apostle). At this point in the discussion, Aristotle seems to be conflating parts of the matter and parts of the composite (1036a26–31). He suggests that some things are not necessarily found in a particular material (e.g. circles), and that in some cases (e.g. in the case of people) it is unclear whether they are necessarily, or only always, found in a particular material (1036a31–b6). This seems to be part of the reason that the account of the composite will not be a definition strictly speaking: we know that what is included in the definition must belong necessarily to the object defined, and material parts do not seem to be necessary, even in the cases where they are always the same.

If one mark of parts of the form is that they are prior (in a causal sense) to the whole, another way in which Aristotle characterizes the parts of the form is to say that they are necessary to the being of the whole. This claim is made obliquely at 7.11 1036ba31–b6, when Aristotle suggests that some things are not necessarily found in a particular material (e.g. circles), and that in some cases (e.g. in the case of people) it is unclear whether they are necessarily, or only always, found in a par-

²⁵ The letters considered as material (these ink marks or chalk marks or marks in the wax) are of course the material parts of a syllable.

ticular material. He is responding to the question posed at 1036a26–27: “Which parts belong to the form and which to the composite?” He has explained that the question is important since, “... if this is not clear, it is not possible to define a thing; for a definition is of the universal and of the form. If, then, it is not evident which kinds of parts are parts as matter and which are parts not as matter, neither will the formula of the thing be evident,” (1036a28–31). So he is looking for the distinguishing feature of parts of the form, and suggesting that in order to belong to the form a part must be necessary to that to which it belongs. This seems to be part of the reason that the account of the composite will not be a definition strictly speaking: we know that what is included in the definition must belong necessarily to the object defined, and material parts do not seem to be necessary, even in the cases where they are always the same.

So the issue of priority and posteriority and the issue of necessity are, I take it, meant to settle the question of whether the formula of the parts must be included in the formula of the whole. That is, when parts (i.e. parts of the form) are prior to the whole, then their formulae must be included in the formula of the whole, but when parts (i.e. parts of the matter) are posterior to the whole, those parts into which the whole is divided, then their formulae need not be included in the formula of the whole.²⁶ If this is right, then introducing matter into the definition as a part of the form will be a question of introducing matter in such a way that it is clearly prior to the whole which is the object of definition. We will have to ask below whether there is matter that is prior in this sense.

Aristotle confirms that we might introduce matter in some way other than as the parts of matter at 1035a7–9: “For what should be stated is the form, or the thing qua having that form, but the material part should never be stated as such,” (trans. Apostle). The “as such” is important: the suggestion is that it might be possible to include matter in the definition if the material can be stated somehow other than *as* material parts. So, for example, the bones and muscle, or the limbs, of a person are not the parts of the form of a person, and so to list these parts as such is not to offer the definition of a person.²⁷ But if there

²⁶ The claims about priority and posteriority, and about parts of the matter and parts of the form, seem intended to resolve the sixth aporia mentioned at *Meta.* 3.3 998a20–b14: “Are the genera, or the simplest constituent parts, the first principles of things?”

²⁷ Aristotle allows that it is possible to give an account of the person as a composite of matter and form, in which case such parts as flesh and bones would be included

were some way to include the matter that did not involve including the material parts, this would be tantamount to understanding matter as a part of the form. This passage suggests, then, that Aristotle believes the introduction of the material parts into an account to be sufficient reason for taking that account to be a formula in some sense, but not a definition properly speaking (since definitions are restricted to substances and matter is not substance).²⁸ But it also suggests that there is a sense in which one can include matter in a definition strictly speaking, by not including it as parts of the matter. This is thus perfectly consistent with Aristotle's claim in 7.10 that the parts of the matter can only be included in formulae of composite substances, and not in definitions strictly speaking of essences. So, for example, in a passage already mentioned, he says that flesh is not a part (i.e. not a part of the formula) of concavity, but is a part of the formula of snubness (1035a4–6); that is, it is a part of the snub, and supposing that we can offer a formula although not a definition strictly speaking of the snub, it will be a part of that formula.

So parts of the matter are posterior to the whole of which they are parts, and the parts into which the whole can be resolved or divided. Parts of the form are prior to, and necessary to, the being of the whole. If, then, we are to introduce matter into the definition, it will have to be as a part of the form, which is to say, matter will have to be necessary to the being of the whole, and prior to it. How can matter accommodate these demands?

Before answering that question, we should notice that Aristotle does acknowledge that while some things can be defined without their material parts, others cannot: “for an animal is something perceptible, and it is not possible to define it without reference to movement—nor, therefore, without reference to the [material] parts and to their being in a certain state,” (7.11 1036b28–30). The point seems to be that while a circle can exist without bronze, and an animal might even be able to exist without flesh and blood (if we suppose that flesh and blood are only contingently the matter of animals), an individual animal cannot

(1035a22–23). This is an instance of his willingness to allow that in a sense there is a formula of non-substances or non-essences, while reserving definition strictly speaking for substance.

²⁸ For an account of formulae that include matter, see Michael Ferejohn, “Matter, Definition and Generation in Aristotle's *Metaphysics*,” *Proceedings of the Boston Area Colloquium on Ancient Philosophy*, 10 (1993–1994): 35–58.

exist without material parts.²⁹ While a definition will not then refer to the material parts into which a substance is divided, it may need to refer to the *functions* of a substance, and these may depend on the substance having material parts. If certain forms always appear in certain kinds of matter only contingently, then the determinate matter of a species is irrelevant to the essence of that species, and need not appear in the definition.³⁰ The only respect in which matter is necessary to at least some species (perhaps most, perhaps all, depending on what will count as a genuine species) is that those species must occur in matter; i.e. they must be susceptible to motion. In other words, certain species are necessarily material, although the *sort* of matter in which they are usually instantiated may not necessary. If this is the case, then the definition does need to mention matter, but not any very determinate matter. Another way to put this is to say that even in the case of things in which matter and genus are extensionally equivalent (that is, things which always in fact have the same material embodiment, for example, biped animal rather than bronze sphere) they are not conceptually equivalent, since Aristotle allows that it is logically possible for such things to be found in other material embodiments.³¹ The point is not that any natural composite substance can occur in any matter (this cannot be true) but that the matter which is strictly necessary for such a substance is not wholly determinate—any matter which might allow the substance to carry out its functions will be adequate. If that is right, then the essence of a natural composite substance need include matter only in a relatively indeterminate specification.

So the question is, what exactly is the matter that needs to be mentioned in these cases, and how is it to be included in the definition? The particular difficulties are of course (1) that matter is supposed to be unintelligible and (2) that including matter in the essence threatens the unity of that essence (the threat is that the introduction of matter will mean that the parts of the formula can have unity only in the sense that Coriscus and musical have unity, i.e. not as-such but accidentally),

²⁹ These material parts must be actualized by a soul and its functions, since Aristotle goes on to say, "For it is not a hand in any state that is a part of man, but the hand which can fulfill its work, which therefore must be alive; if it is not alive it is not a part."

³⁰ For an alternate view, see D.M. Balme, "The Snub," 1–8. Balme understands Aristotle to say that the definition of some species at least must mention the specific matter of that species.

³¹ Michael J. White, "Genus as Matter in Aristotle?" *International Studies in Philosophy* 7 (1975): 41–56, 48.

making it not an essence and hence impossible to define strictly speaking. Since, however, Aristotle on several occasions says that *in one sense* a genus is or is like the matter for some species; and since he believes that definitions should be structured as genus/differentia(e) terms, these definitions do seem to include matter by including the genus. Let us examine Aristotle's claims in order to see in what sense the genus represents matter, and how genus can represent matter without compromising the unity of the essence defined.

iii. *Genus as matter*

The question is: how might we include the matter in a definition without including the parts of the matter? The aim in this section is to show how the genus can function as matter in such a way as to guarantee unity in an immediate definition without compromising the intelligibility of the definition. To do this, the genus must be necessary to the object of definition and prior to it, as we have seen. I am going to proceed by elaborating the claim that there is no need for Aristotle to say that the genus in a definition represents any very determinate matter, because (a) the sense in which matter makes possible the unity of parts in the form/matter composite is not a sense that requires such determinate matter, and (b) matter is necessary to natural kinds not in such a determinate specification.

First, let me reiterate the point that Aristotle does not recognize the need to include specific kinds of matter as such in definitions, as we have just seen. If the genus were to represent specific kinds of matter, then it would have to represent some or all of the parts of matter (the homeomerous parts), and such parts, as we have seen, are rigorously excluded by Aristotle from definition strictly speaking. Consider the passages in which Aristotle identifies the genus with matter. At *Metaphysics* 5.28 1024a36–b9 Aristotle says that a genus in one sense is matter, or the substratum to which the differentia belongs.³² Then, at 10.8 1057b37–1058a2, in a discussion of what it means to be other in species, Aristotle says that by a genus he designates that by which two [species of animals] are called one and the same, whether that by which both

³² The other senses are (i) when there is continuous generation of the same form, (ii) with respect to the first moving cause that is the same in form. Notice that these three senses in effect parallel the causes—only the final cause is omitted, presumably because it can be identified with the formal cause.

are called one and the same is [understood] to be matter, or not. Most explicitly, at 1058a23–24, Aristotle says that the genus is the matter of that of which the genus is said, i.e. the matter of the species. None of these passages suggest that the identification of genus with matter requires that the genus should represent specific kinds of matter, but only that it represent a “substratum”. This material substratum cannot be entirely indeterminate (for what then would distinguish one genus from another?) but it need not be as determinate as the homeomerous parts. The evidence that Aristotle would not claim that it is that determinate is his willingness to entertain the possibility that at least some natural kinds might occur in matter other than the matter in which they regularly do occur.

I propose that we should understand Aristotle’s claim to be not that the genus represents any specific kind matter, but rather that the genus in the definition represents relatively indeterminate matter, in its function as potential being.³³ There are various senses or kinds

³³ See White, “Genus as Matter in Aristotle?” and M. Grene, “Is Genus to Species as Matter to Form?” *Synthese* 28 (1974): 51–69, for arguments that the genus cannot represent the proximate matter in the definition.

Those who argue that the genus in a definition does represent the matter of the species defined offer different reasons, and suggest different understandings of “the matter of the species”. In “Genus as Matter: A Reading of *Metaphysics Z-H*” (in *Exegesis and Argument*, Phronesis Supplementary volume 1, ed. E.N. Lee, A.P.D. Mourelatos, R.M. Rorty [Assen, the Netherlands: Van Gorcum, 1973], 393–420), Richard Rorty claims that for Aristotle proximate matter and form are identical, and that this identity is mirrored in definitions in the unity of genus and differentia (394). One reason that form and proximate matter must be one, according to Rorty, is that there is no matter that can be characterized independently of form. The suggestion is that while it is plain that the proximate matter of a bronze circle (the bronze) and its form (the circle) are one and the same thing, it is not plain how, for example, “two-footed” and “animal” are one and the same thing; Rorty asks why it is that the definition attributes to the subject one characteristic rather than two (402). He points out that it is misleading to speak of a definition as the attribution of characteristics to a subject, when in fact a definition is an identity statement rather than a predication. Indeed, his claim is that the problem of the unity of definition is the problem of how to understand the matter/form relation both logically and metaphysically such that neither form nor matter will be an attribute of the other. Aristotle’s answer to each of these problems is founded on the distinction between potentiality and actuality. Rorty’s claim is that Aristotle was making an effort to avoid both a Platonist reductionism and a materialist reductionism. For this reason, he held that the formula of a given substance must tell us about the form of the substance, but it must do so by telling us just enough about the matter to prevent Platonist reductionism while not enough to lead to materialist reductionism (399–400). According to Rorty, the solution to the problem is that the definition includes the genus that represents the material cause, which just is the substance in potentiality.

A.C. Lloyd offers other reasons for taking the genus in a definition to represent

of matter that cannot be represented by the genus in a definition for different reasons. “Proximate matter”, if that means the matter of the individual substance in the sense of the discrete quantity of matter that constitutes that individual at a given moment, cannot be

the matter of the species defined (“Genus, Species and Ordered Series in Aristotle,” *Phronesis* 7 [1962]: 67–90). Lloyd is concerned with Aristotle’s claim that in what he calls a P-series (a series of objects which have an order of priority) the universal is not logically related to the series terms as genus to species, that is, the universal is not predicated essentially (i.e. κατ’ αὐτό) and unequivocally of the terms (68). Lloyd argues that in any species the relation of generic and differentiating universal (that is, of the genus to the differentia in the definition) is that of matter and form appropriate to that matter; but that this relation is manifested in one way in a genuine genus like “animal” and in another way in the quasi-genus of a P-series, for example “soul”. The difference is that in a genuine genus the differentia is unique and essential whereas in a quasi-genus the differentia, while unique, is not κατ’ οὐσίαν (81). The reason for this, according to Lloyd, is that in the vertical series of terms in a genuine genus (that is, the series from highest genus down to the infima species) the higher terms can be absorbed by the succeeding terms (for example “land animal” is absorbed by “footed animal”) because the higher terms are present in the series merely as potentially determined, whereas in a P-series each of the terms is a lowest species which divides into individuals and hence is not merely potentially determined but actually determined. The point of this argument for the question at hand is that in a genuine genus the genera stand as proximate matter to the lower terms in the series, and are absorbed by them. Lloyd recognizes that the matter/form relation and the relation of potentiality to actuality are always relative; that is, what stands as actuality or form in one relation stands as matter and potentiality in another. This is how the higher term can be absorbed into the lower and also how proximate matter can be one with form: in the unity of the potential with the actual. Lloyd along with Rorty views the genus in a definition as standing for the proximate matter of the species and considers the unity of definition in the same light as the unity of form and matter in the individual.

Balme, in “The Snub” and “Matter in the Definition: A reply to G.E.R. Lloyd,” in *Biologie, logique et métaphysique chez Aristote*, ed. D. Devereux and P. Pellegrin (Paris: Éditions du CNRS, 1990), 49–54, argues that the object of definition is the individual, as matter and form; I infer from this that he believed that the genus represents the matter of the individual (not just of the species) in the definition; but in the reply to Lloyd he says, “Matter qua matter is not a thing but a role played by things,” and he may have believed that the genus represented the matter, but not literally (49).

Michael Ferejohn, in “Matter, Definition and Generation in Aristotle’s *Metaphysics*,” argues for an interpretation of 7.11 according to which Aristotle there recognizes the possibility of an “enmattered formula” for natural composites of form and matter. These “enmattered formulae” would not be definitory formulae, and the genus would not represent matter literally, but they would seem to include literal references to matter. See also Ferejohn’s, “The Definition of Generated Composites in Aristotle’s *Metaphysics*,” in *Unity and Identity: The Principles of Aristotelian Substances*, eds. D. Charles, M.L. Gill, and T. Scaltsas (Oxford: Clarendon, 1994), 291–318.

As an aside, if we take definition to be, among other things, a form/matter analysis, then we might argue, as does LeBlond, that artifacts are most definable (“La définition chez Aristote”). The problem with trying to analyze a natural substance in terms of form and matter, according to LeBlond, is that natural substances tend to occur in a

represented in the definition, because it is perceptible matter and as such unintelligible. “Proximate matter”, taken to mean the kind(s) of matter from which individuals of a species are constituted (so, e.g. the flesh and blood and bone, or their analogues, in an animal) also cannot be represented in the definition, because the matter that is represented must be necessary to that species, and Aristotle does not seem to be convinced that the usual material instantiations of individual substances are necessary. The genus can only represent the matter that is necessary to the being of the kind in question, and this will be relatively indeterminate, and universalized, matter.

Both genus and matter are potentially what they will be actually when actualized by the differentia(e) or the form, and neither genus nor matter are completely indeterminate. Potentiality always involves some degree of determinacy since what it is to be potentially X is to be not-X but capable of becoming X, and that capability already implies some determinacy (*Physics* 1.8 191b9–10). We have already seen some evidence to support the notion of genus as potentiality, namely the discussion of the problem of unity as resolved either by considering the way in which the differentia entails the genus (hence creating a unity of the two), or by considering the relation of form and matter as actuality and potentiality (where the actualization of what is potential creates a unity of what was potential and what is actual). If these are both ways of understanding how something can have parts and yet be a unity, then the genus represents matter. That is, in the two relations, genus + differentia and matter + form, Aristotle treats the genus and the

unique kind of proximate matter, which makes it difficult to separate their form from their matter. While things like circles can occur in any number of different materials, things like dogs always occur in flesh and bones. One might therefore be led to think that “flesh” belongs in the definition of dog, when it belongs no more than “bronze” belongs in the definition of circle. For this reason LeBlond claims that an artifact, the form of which is easily distinguishable from its matter, is the proper object of definition.

But what LeBlond takes to be the problem with this analysis is in fact the whole point of the analysis. It is just because form and matter are difficult to distinguish in natural substances that Aristotle puts forward the inseparability of form and matter in such substances as a model for the unity of the parts of definition. LeBlond is therefore mistaken on two counts: 1) it is a mistake to think that definition as a form/matter analysis works better to express form/matter relations when the form is easily distinguishable from the matter and 2) it is a mistake, as I have said, to think that definition is a form/matter analysis in the literal sense; a definition does not express in its parts the form and the matter of an individual, but two (unified) parts of a universalized essence.

matter as potentialities relative to the actualities that are the differentia or the form. Their common status as potentialities is what allows the genus to represent matter.

I have been suggesting that the reason that the genus represents some relatively indeterminate matter is that any more determinate matter is precisely more determinate than the essence or the definition requires. The point bears on the claim that Aristotle makes in the *Posterior Analytics* at 1.24 85b5–7 with the example of the isosceles triangle, to the effect that what we want to include in the definition is the first term (in a division) to which the attribute belongs. That is, the interior angles of an isosceles triangle are equal to two right angles because it is a triangle and not because it is isosceles; so having internal angles equal to two right angles is an attribute that belongs to triangle and not to isosceles triangle. So, if we are defining triangle, we ought not to include specifications peculiar to isosceles triangles. In the case of genus and matter, Aristotle is surely saying not just that we need not include matter in all its specificity in the definition, but that we ought not to do so, because in so doing we are likely to introduce something non-necessary into the definition. The genus does not, then, represent the matter that enters into a composite substance, but represents matter more generally construed, as a potentiality. If I am right that it is the potentiality of both matter and genus that allows the genus to represent matter in the definition, then we are led to another salient similarity between genus and matter: the universality (as opposed to the particularity) of each. We will see below in Section IV that Aristotle identifies matter as potential with the universal as potential. The universality of genus and of matter confirms the claim that the matter which the genus represents is not the matter of the individual, since the matter of the individual will not be universal.

To reinforce the claim that the genus in a definition must represent relatively indeterminate matter, and not more determinate specific matter (whether understood as a discrete quantity or a kind), I turn now to the differences between determinate specific matter and genera. First, the genus is not a substrate in the same sense that matter is a substrate to the individual members of a species, but rather a principle derived from species and ultimately from individuals.³⁴ So, as I have

³⁴ Alexander of Aphrodisias, *Quaestiones, Liber II, Capitulum 28: Materiam non esse genus*, in C.A.G., ed. I. Bruns, Supplement 2, vol. 2 (Berlin, 1892), 77–79; cited by A.C. Lloyd in *Form and Universal in Aristotle* (Liverpool: Francis Cairns, 1981), 59–61.

said, the sense in which some individual quantity of matter is potentially what a form makes it actually is rather different from the sense in which a genus is potentially what its differentiae make it actually. The point is that genera, as logical constructs, are dependent on individuals and do not underlie individuals as specific matter does. One sign of this is that Aristotle defines the parts of matter precisely as those parts into which the whole can be divided, whereas he resists the notion that genus and differentia(e) can be divided, and certainly the species cannot be resolved into genus and differentia(e) in the way that a circle might be resolved into segments. This difference between specific matter as what underlies and genus as what is derived from individuals suggests that specific matter and genus are potentially in different ways. More specifically, the genus of a thing does not produce that thing, but can be determined only once the thing in question exists. In this sense the role of genera in generation is incidental, while the role of specific matter is not.³⁵

This is important insofar as it bears on the sense in which matter is causal and is prior or posterior, and the sense in which the genus is causal and is prior or posterior. I said above (p. 143) that Aristotle maintains that parts of the whole (i.e. of the species form) if they are prior must be included in the definition of that whole, whereas parts of the whole (again, the species form) that are posterior to that whole need not be included in the definition. We saw that the parts that are posterior are the material parts, and the parts that are prior are the parts of the form. The question was whether there could be some part of the form that is prior and yet is, or represents, matter. The answer, I am suggesting, is that Aristotle thinks the genus is precisely that: it represents matter in being potentially what the whole (the species form) is actually, and it is prior to that whole because it is causal as part of the form and not as a material cause. The matter of an individual (or some matter of the individual) is prior in some sense to that individual, but posterior to the form of the individual, because the material cause follows on the final and formal cause of the generation of an individual. The genus of a species, by contrast, is prior to the species form because it is formally causal with respect to that species.

³⁵ White, "Genus as Matter in Aristotle?" 50. Notice also that this is the same point made by Balme: the cause of an individual is the form of that individual's parent, and not the species or the genus as an abstract universal (D.M. Balme, "Aristotle's Biology was not Essentialist," *Archiv für Geschichte der Philosophie* 62, no. 1 [1980]: 1–12).

But it is posterior to the individual, because it is not formally causal with respect to the individual.

Second, while genera are specifically indestructible, the matter of individuals is numerically indestructible: particular instances of matter are never destroyed although they are transformed. This difference in indestructibility can be traced to the difference between matter as substrate and genera as principles derived from species. It is because genera are derived from, and dependent on, species that their indestructibility can only be a function of the indestructibility of species; and it is because the matter of individuals is not derived from, but underlies, those individuals, that the indestructibility of matter is not a function of the indestructibility of individuals. This difference in indestructibility is also then a sign of the difference in the potentiality of genus and the matter of individuals.

If then the genus in a definition represents (relatively indeterminate) matter and is potentially what it is actually (i.e. is potentially the species) when actualized by a differentia or set of differentiae, we have the basis for an analogy between the relation of the parts of the definition (the genus and the differentia(e)) and the relation of the parts of the individual composite substance (form and matter). The analogy does not depend on the genus representing the matter that is part of the individual composite (I have argued that it does not, and need not); it depends on the status of genera and matter as potential relative to the other part (differentia(e) or form). The important point of the analogy is that the two relations both produce unity because of the potentiality of one term of the relation, the genus in the definition, and the matter in the individual.

Construing the genus in a definition as representing the relatively indeterminate matter that is the substrate of the species form allows Aristotle to avoid the difficulties that including matter in more determinate senses (particular matter, or the matter peculiar to a species) in the essence or definition incur. If genus is matter in the sense of potentiality it can be intelligible as such. The unintelligibility of matter is always connected by Aristotle to the particularity of matter and to the issue of epistemological access: the way to grasp matter is through perception. If there is some way of conceptualizing and universalizing matter—i.e. conceptualizing matter as potentiality—then there is a way of grasping matter that is not perception, and hence a way of avoiding making the matter-analogue (the genus) in a definition unintelligible in the manner of the objects of perception.

Moreover if genus is potentially what the differentia is actually, then Aristotle can begin to account for the unity of the essences of simple natural items. But how can he argue that the coupled and compound items of 7.4–5 do not also have the requisite unity for (strict) definition? That is, why is the relation of odd and even to number, where number is in a sense the “matter” of odd and even, or the relation of pallor to a person, where again the person is in a sense the “matter” of the pallor, not the same as the relation of genus to differentia in the definition and in the essence? This is obvious in the case of pallor; things other than people might be pale, so pallor does not entail person, and the two items do not form a unity for that reason. But how does the relation of odd to number differ from the relation of the differentia to the genus in a definition? That is, how does the relation of subject and predicate in $\kappa\alpha\theta' \alpha\upsilon\tau\acute{o}$ relations of the second sense differ from the relation of differentia and genus? Certainly, the subject belongs in the essence of the predicate as the matter in the sense of potential being; number really is the (intelligible) matter of odd and even, animal of male and female, nose-flesh of snub. At the same time, Aristotle denies that the predicates in the case of coupled items are differentiae; that is, these predicates do not divide what they belong to into sub-species, and this is why Aristotle will insist that they are differences in the matter rather than the form, and insist that only differences in form will divide a species into sub-species (*Meta.* 10.9 1058a29–b25). So a differentia must not only belong to the genus as-such, it must belong to the form of the genus as-such, rather than to the matter of the genus as-such, in order to constitute a unity with the genus. Otherwise, the relation between genus and differentia is the same as the relation between the parts of such “coupled” items as male animals and snub noses—and that relation, as we have seen, does not provide the unity requisite for the possession of essence. So, the unity of definition depends not only on the genus representing matter as potentiality, but also on the differentiae in the definition being one that divides the form of the genus and not its matter. That is, the differentia stated in the definition must divide the genus into species; by contrast, for example, “male” and “female” do not, in Aristotle’s view divide the genus animal into species.

This indicates a way of resolving the problem of reconciling the requirement of multiple differentiae in the initial division (to avoid dichotomous division at that stage) with the requirement of successive differentiation (to avoid arbitrary divisions) which is intended to guarantee the unity of the differentiae with the genus. The problem, as we

have seen, is that the unity provided by successive differentiation seems only to explain the unity of one differentia (or successive differentiae) with the genus, and not the unity of the multiple lines of differentiae with the genus. The mistake, as we have seen above, is to suppose that the multiple differentiae are many rather than one to begin with. Just as Aristotle suggests at 8.6 that the genus and the differentia are not really two, and hence that we do not need to ask what makes them one, so too the multiple differentiae are not really multiple. At 7.12 1037b24–27 he says:

But surely it is necessary that everything in the definition should be one. For the definition is one formula and of the substance, so that it is necessary that it should be the formula of some one [thing]. For the substance too signifies some one [thing] and a this, as we say.

Aristotle does here try to say why everything in the definition must be one: because the object of definition is one. But he does not seem to say how the multiple differentiae necessary for completeness can be one in the necessary sense.³⁶

I want to suggest that the justification for the claim about the necessary oneness of differentiae and genus lies in the distinction between divisions in the matter of the genus and divisions in the form of the genus. Differentiae (and sets of differentiae) are *καθ' αὐτό* attributes unlike those *καθ' αὐτό* attributes (such as male/female and odd/even) that divide the matter of a kind, but not its form, precisely insofar as differentiae divide the form *rather* than the matter of the genus. The set of differentiae that marks off one species from another, which divides the form of the genus, is itself a unity—it must be a unity, or it could not divide the genus. Because the set of differentiae is itself a unity, it can form a unity with the genus. This raises an epistemological problem, of course: if we know that differentiae are unities because they divide a genus, when other *καθ' αὐτό* attributes do not, we should have an independent means of determining that they do indeed divide the form of the genus; Aristotle does not seem to provide such an independent means. I will argue below in Chapter Five that while the requirements

³⁶ Some commentators believe that Aristotle simply assumes the unity of the objects of definition. So, for example, Modrak says “Aristotle does not succeed in formulating criteria for establishing the unity of the differentiae making up a definition ... At the end of the day, a definition is one because it expresses the essence of a substance that is one. That there are such substances and that the mind is able to recognize them are treated as primitive assumptions by Aristotle.” (*Aristotle's Theory of Meaning and Language*, 167).

of the procedure of division are intended to guarantee that the differentiae entail the genus, they do not guarantee that any attribute that entails the genus will divide the form of the genus. On the contrary, Aristotle seems to suppose that we can pick out the divisions in the genus easily enough, i.e. pick out the natural kinds that are species, and use that information to determine which differentiae divide the genus.

In this section I have argued that Aristotle wants to include matter in the essence of material composites, and to represent matter in the definition of that essence by the genus. On my interpretation, Aristotle believes the inclusion of matter will allow for the unity of the definition and of the essence (although it will not be sufficient for that unity—the differentiae must also meet certain requirements). If one of the parts is potentially what the other is actually, then the unity of the whole can be explained by analogy with the unity of form and matter in the composite individual substance (although, in my view, the individual matter is not the matter represented by the genus). One implication of this account of the unity of the parts of definition is that the objects of definition proper (the definition that I have been calling immediate definition) will now be restricted to simple items in the category of substance, because only simple items in the category of substance will have this kind of unity. The account of unity does not compromise the claim that matter is unintelligible, since matter is included in the definition only in a relatively indeterminate form—it is not perceptible matter but matter taken as universal, and so intelligible. This is a point I will pursue in the next section.

Unity is an issue, as we have seen, because Aristotle insists that definitions must have parts; otherwise they are just names, and not definitions at all. (The parts that definitions must have must correspond to parts of the essence, because the definition is an account of that essence.) The parts of definitions will be the genus and differentiae, because Aristotle is committed to the view that definitions will be produced by the method of division, which divides by way of genera and differentiae. We still need to ask why Aristotle is wedded to the method of division; in the next chapter I will argue that it is because Aristotle thinks only division has a chance of arriving at definitions that are adequate accounts of essences.

IV. *Definitions and definable essences as universals*

In this section I argue that Aristotle understands immediate definitions to be universal, and that that universality follows from two crucial features of immediate definitions: first, that they are causal in the sense that they state the formal causes of their objects; second, that they express their objects potentially, and that potentiality is associated by Aristotle with universality.³⁷ I return to the *Posterior Analytics* in order to trace the argument for the association of the universal with the cause, and then consider how Aristotle comes to identify potentiality with the universal.

In the discussion so far in this chapter I have set out the apparent tension between the claim that a definition and hence a definable essence must have parts, and the claim that those parts must form a unity such that the definition and the definable essence are “simple”. I have argued that Aristotle tries to resolve that tension by arguing that the parts of a definition and of a definable essence stand in a relation analogous to the relation between matter and form in a composite substance. Thus one part of the definition (the genus) is potentially what the whole is actually once actualized by the differentia(e), just as the matter in a composite substance is potentially what the whole is actually once actualized by the form. It is this potentiality that suggests the universal. But the point is not only that the genus in an immediate definition is universal and potential relative to the differentia(e), but also that an immediate definition as a whole (the genus and the differentia(e)), and its object, the essence that has unity, are universal and potential relative to the individuals informed by that essence. My aim here is to show not just that the universality of immediate definition follows from the potentiality and causality of immediate definition, but also that if we accept that immediate definitions are universal we can understand better how the discussion of definition in the *Metaphysics* fits with the discussion in the *Analytics*.

The association of proximate matter with the individual is such that we might be led to believe that if Aristotle thinks that one part of an immediate definition, the genus, is an analogue of matter in

³⁷ It will be true also that syllogistic definitions are universal. Because the focus of this chapter is on Aristotle's treatment of definition in the *Metaphysics*, and that definition is immediate, I will largely confine the discussion here of the universality of definition to the case of immediate definition.

the composite individual, then he believes that immediate definition is definition of the individual.³⁸ I think that inference is a mistake, as I have suggested by insisting in the previous section that the genus does not represent proximate matter but something more general. There is too much evidence that Aristotle believes that immediate definitions and their objects are universal; setting out this evidence is the first aim of this chapter. A second, supporting, aim is to show that if immediate definitions are universal, then we have a way of understanding the connection between the discussion of definition in the *Analytics*, and the discussion of definition in the *Metaphysics*.

i. *universals in the Analytics: more causal*

I begin with the evidence that immediate definitions must be universal just because they state the formal cause of their objects. One reason to believe that definable essence and its definition are universal is that the essence will be a formal cause, the definition an account of the formal cause, and Aristotle insists that what is “more of a cause” is the universal, not only in the *Analytics* (*An. Po.* 85b23–27), but also in the *Metaphysics*. The reasons we have seen for understanding immediate definitions as causal in a certain sense are then important for understanding the universality of definition in the discussion of the *Metaphysics*. At 1.1 of the *Metaphysics*, in distinguishing ἐμπειρία from both ἐπιστήμη and τέχνη, Aristotle draws the contrast in terms of knowledge of the cause and knowledge of the universal; to have science or art is to know the cause and hence to know the universal and not just the individual case (981a5–7; 981a15–16; 981a24–30). So in the *Metaphysics* as in the *Analytics* being a cause is associated with being a universal.

First, consider the account of the universal as causal in the *Posterior Analytics*. We saw in Chapter Three that Aristotle understands both immediate and syllogistic definitions to be necessary, because they express the formal cause of the definiendum, where the formal cause is either the διὰ τί or the τί ἐστὶ of that definiendum. For the same reason, he understands both kinds of definition to be universal (καθόλου). In fact, this is why the first principles (and other propositions) that enter into demonstrations must be universal—so that we can know that the cause which is the τί ἐστὶ is included. That this is the reason that Aris-

³⁸ See especially Balme, “The Snub”.

totle insists that demonstrative propositions must be universal is clear when we consider the claims in several passages that tell us how Aristotle conceives of the universal, and what relation it has to causes.

The first of these passages is at *Posterior Analytics* 1.4 73b26–28: “I call universal (καθόλου) whatever belong to something both in every case and in itself and as such (καθ’αυτό). It is clear, therefore, that whatever is universal belongs necessarily to its objects.” Two important points are revealed in this passage. The first is the connection Aristotle draws between attributes that belong necessarily and attributes that belong universally in this precise sense. So everything that is universal in this sense belongs necessarily to what has it. Just as attributes which belong as-such to an object (in a specified sense of as-such) are necessary to it, so too such attributes count as universal in the sense described in this passage. The necessity and the universality of attributes are then both functions of belonging as-such to an object.

The second important point revealed by this passage is that what is universal is a sub-set of what belongs in every case (κατὰ παντός). A universal not only belongs in every case to its object, but belongs to it as-such. The sense of “as-such” here seem to be the sense in which an attribute is as-such if it belongs to its object “in what it is”, i.e. if it is part of the essence of its object. The distinction between what belongs universally and what belongs in every case is crucial for tying what is universal to what is necessary. Attributes that belong to every instance of an object may not belong to every instance as such, and therefore may not belong necessarily. Every dog in the world may be sleeping now; every tea-cup may be dirty; every valley filled with cloud. But “dirty” is not a universal attribute of tea-cup, even if it were true in every instance of tea-cup, because it does not belong to tea-cup as such. That it does not belong as-such means that it does not belong necessarily—a tea-cup remains a tea-cup even when clean. And that “dirty” does not belong necessarily to tea-cup means that dirt cannot be part of the essence of tea-cup, because anything essential will be necessary.³⁹ So an attribute that is universal in this sense is an attribute that belongs not only to every instance of a kind, but belongs to it as such in the sense that it is an attribute of the essence. Any such universal attribute then belongs necessarily to its objects (73b27–28). It follows

³⁹ Of course, what is necessary may not be essential; but what is essential must be necessary. See Joan Kung, “Aristotle on Essence and Explanation,” *Philosophical Studies* 31 (1977): 361–383, 362.

that the universal attributes which belong not only to every instance but also as-such are essential and therefore necessary attributes. Because, then, Aristotle in this passage defines what is universal in terms of what belongs as-such, where what belongs as-such in this sense belongs to the essence, he is claiming a connection between the formal cause of an object and what is universally (and necessarily) attributed to that item.

The definition of universal at *Posterior Analytics* 1.4 73b26–28 then suggests already the connection between this conception of the universal and the cause. In another passage at 1.24 85b23–27, Aristotle describes the relation between the universal and the cause in demonstration. This passage is important for our purposes because it makes clear why immediate definitions, as first principles of demonstration, must be universal; they must be universal because the universal is “more causal” and the first principles of demonstrative science must be more causal. Consider the passage in question:

Moreover, if demonstration is a syllogism which shows the cause, i.e. that through which (διὰ τῷ) [something is], and the universal is more of a cause (αἰτιώτερον) (for that to which something belongs as such is the cause of itself; and the universal is primary; so the universal is the cause) then demonstration is better, for it is more of the cause of that through which something is. (85b23–27)

This passage occurs in the context of a debate about the merits of universal demonstration over particular demonstration, in which Aristotle is arguing for universal demonstration.⁴⁰ A demonstration is better if it gives us better knowledge; and it is the person who knows a thing as it belongs to its subject who knows it better (85b9). So a universal demonstration is better because it gives us better knowledge, and it gives us better knowledge because it gives us the cause, and if we know the cause then we know the thing as it belongs to its subject. Now, why is the universal “more” of a cause (“More than what?” we might ask)? The answer is in the example of isosceles and triangle at 85b5–7: if we want to state the cause with respect to the interior angles of a figure being equal to two right angles we should say that it is triangle rather

⁴⁰ One might doubt Aristotle’s commitment to the claim that universal is more causal, given the context of an aporetic chapter. I think there is sufficient evidence elsewhere in the corpus that Aristotle believes that the universal gives us better knowledge, because it gives us more knowledge, to warrant accepting that he means to say here that the universal is better because it is more causal (more causal than what it is particular), and knowing the cause is what gives us more knowledge. See *Meta.* 1.1 981a13–27.

than isosceles. This is because, although it will be true of an isosceles that its interior angles are equal to two right angles, it will be true because it is a *triangle*. So the attribute belongs in every instance and as such to triangle, while it belongs in every instance but not as such to isosceles, since it is in virtue of being a triangle and not in virtue of being an isosceles triangle that a figure has this attribute. So, the universal is more of a cause than any of the kinds that fall under it.

Notice that, in order to understand what Aristotle means in saying that the universal is primary we must understand the context to be a division: the universal is the first thing in the division because of which the item has this attribute. So “figure” will not do, since some figures do not have interior angles equal to two right angles. Triangle is the first division which entails having interior angles equal to two right angles. Unless we assume the method of division as backdrop here, it is difficult to understand the sense in which the universal will be primary, or the sense in which it is triangle rather than isosceles that is the cause of the interior angles of a triangle being equal to two right angles. And if we assume that the universals in question are universals in a process of division, that strongly suggests that what Aristotle has in mind here when he speaks of universals are the universal attributes that constitute definitions.

It is obvious, but important, that, given Aristotle’s definition of the universal at 73b26–28, his claim that the universal is more of a cause is plainly *not* the claim that any attribute that belongs to all the instances of a kind is a cause. The claim is rather that an attribute that belongs *as such* to the kind, and *therefore* belongs to every instance, is a cause of that kind. This, again, is the sense in which the universal is primary—it is that in virtue of which the attribute first belongs to a kind, where this “first” means “first in a division”.

What do these passages tell us about immediate definitions?⁴¹ Immediate definitions contain an *aition* that, as we have seen, cannot be dis-

⁴¹ I am no longer here concerned with syllogistic definitions, but it is worth saying something about what these claims about the universal tell us about syllogistic definitions. We have to remember that a syllogistic definition is not of course the entire demonstration in which it is displayed, but the conclusion plus the middle term of that demonstration. To say with respect to a demonstration that the universal term that is the middle term is αἰτιώτερος is to say that it tells us in virtue of what the attribute belongs to the subject in the conclusion (tells us this *more* than anything else), and why it must therefore belong in every instance. So we know that thunder is a noise in clouds which occurs *because* of the quenching of fire in clouds, and we know that it will be true of every instance of thunder that it is a noise in clouds, because that is what the

played as a middle term (as the *aition*) in a demonstration. In what sense then is the predicate of an immediate definition a universal and “more of an *aition*”? In the same sense that the universal terms, the predicates of syllogistic definitions, are αἰτιώτερον, namely because they are the first terms (in a division) to belong as such and in every case to that of which they are *aitia*.⁴² The difference is only that in the case of immediate definitions what these universal terms belong to are simple items, whereas in the case of syllogistic definitions, what they belong to are items ἐπὶ μέρους. Consider the claim that universal demonstration is better, as it is repeated at 1.31 88a5–8: “The universal is valuable (τίμιον), because it makes clear the *aition*. Therefore, with respect to such things as have an *aition* other than themselves, a universal [demonstration] (ἡ καθόλου) is more valuable than perception or thought (τῆς νοήσεως). With respect to first principles, there is another account,” (modified Barnes translation). What is the other account with respect to first principles? It will have to be universal, if it is to be more causal. But demonstration will not do, because first principles are indemonstrable. Nonetheless, the universal that is the *aition* can be displayed in the proposition that is the definition, as the predicate. So the question is, what is the process other than demonstration that makes clear the cause in the case of things that do not have causes other than themselves? In Chapter Five, I will consider division as the “other account” Aristotle proposes, that is, the way in which we arrive at the causes of first principles, which are not other than the principles themselves.

quenching of fire in clouds produces. This is how we must understand the middle term in the demonstration as the *aition* of the conclusion, and as more causal than anything else. How does this understanding transfer to the definitions displayed by these demonstrations? Syllogistic definitions will also be universal in the sense that they include both parts of the *aition* (that which is expressed in the conclusion of the demonstration, and that which is responsible for the connection between subject and attribute as set out in that conclusion) which belong (jointly) to every instance of the definiendum, and belong to every instance as such. That is, “a noise in the clouds produced by the quenching of fire” will belong universally to “thunder”. Moreover, “a noise in the clouds produced by quenching of fire” is more causal with respect to thunder than any other predicate.

⁴² It is worth remarking that of course the *aition* in the case of both syllogistic definitions and immediate definitions, while universal and as such αἰτιώτερον than some other predicate which was not universal, is not more universal than the item of which it is the *aition*. To think this is to conflate the notion of the universal as κατὰ παντός with the notion of universal as καθόλου. In fact, Aristotle is quite explicit that the reference of the terms that define cannot collectively extend beyond the reference of the term that is defined.

ii. *Universals in the Metaphysics: universals as potential*

We have seen that the genus in definitions represents the matter of a kind as the potentiality of the definable essence in the definition. One part of the definition is potentially, and this suggests that one part of definable essence is potentially, given Aristotle's assumption of structural parallels between definitions and definable essences. Now, the genus is clearly a universal: that is, it belongs to many things. The sense in which it belongs to many things is also the sense in which it is potentially many things, and so being potentially and being universally come to be associated. Since the inclusion of an element of potentiality in the definition and the definable essence is crucial to Aristotle's solution to the problem of unity, it is also crucial to the explanation of the sense in which the object of definition is simple. The genus is potentially insofar as it is a universal; and this universality guarantees the intelligibility of the genus (despite its potentiality) in the definition and in the definable essence. I am now going to argue that definable essence and the predicate of the definition that is its formula are also universals because they are potentially many things; that is, the predicate as a whole is a universal, and not only one part of it. There is, of course, a difference: the genus is universal—and potential—relative to the differentiae; the predicate as a whole is universal relative to the individual essence.

The *Posterior Analytics* makes clear that to be universal is to be causal in a strong sense, because of the association of the universal with the formal cause. The *Metaphysics* seems rather to emphasize that the universal is potentially what the particular is actually. This suggests a certain tension. Can what is potential be formally causal? Does Aristotle not routinely associate the formal cause with the actuality of a thing? In reconciling the claims that the universal is both causal and potential, my first task is to show that Aristotle does make room for a formal cause that is potential. I have been arguing that the genus in a definition represents the matter of the kind defined, because the genus is an element of potentiality, where this is crucial for establishing the unity of the definition and of the definable form. In showing that in the *Analytics* Aristotle characterizes the universal as causal, I have established that we do not need to conclude that because a definition is universal it cannot represent the formal cause. I turn now to the more positive evidence, that in the *Metaphysics* Aristotle develops a notion of the universal formal cause as potential.

I want now to suggest that essence considered universally is essence considered apart from individual matter. Some commentators suggest that definable form is individual, but I contend that it must be universal, both because of textual evidence for that view, and because understanding definable form to be universal has philosophical implications that Aristotle thinks are desirable (implications that I will elaborate below: in particular, what it is for a form to be universal is for it to be considered without individual matter, and a form considered without individual matter is an object that avoids the pitfalls of both compound and coupled items).

We have already seen some evidence in the passage at 7.15 1039b27–30 that Aristotle does not consider individual essences to be definable: Aristotle claims that what is eternal, if it is unique, cannot be defined, and as examples of what is eternal and unique he mentions certain celestial bodies, composites of matter and form (sun, moon) as well as Platonic Forms, which are essences without matter. This passage then makes clear that unique individual essences cannot be defined in a strict sense.

Moreover, Aristotle says outright that definition is of the form and *the universal* at 7.10 1035b32–1036a1: “A part is [a part] of the form (and by form I mean the essence) or of the composite of form and this matter. But the parts of the formula are the parts of the form alone, and the formula is of the universal; for being a circle and a circle and being a soul and soul are the same.”⁴³ And again, “... definition is of the universal and of the form” (1036a28–29). Moreover at 1034a5–8, in speaking of the generation of individuals, Aristotle says, “And when the whole (τὸ ᅗπαν) already [has been generated] such a form in these flesh and bones, [this is] Callias or Socrates; and they are different because of their matter (for it is different) but the same in their form (for form is indivisible).” Clearly a form, if it belongs both to Callias and to Socrates, is such that it may belong to many and may be said of many, and is therefore a universal. More indirect evidence for this claim occurs at 1030a11–13 where Aristotle says that essence belongs to nothing that is not the species of a genus (τῶν γένους εἰδῶν).⁴⁴ This

⁴³ The text at 1035b33 is uncertain, but the uncertainty does not affect the point I want to make here.

⁴⁴ This claim, and the reason Aristotle offers here for limiting essences to species

phrase “species of a genus” suggests that the form is a universal relative to a higher universal, and is not an individual; since the definition will be of the form, if the form is a universal, the definition will be of a universal. Finally, at 1033b21–24, in arguing that form or substance is not generated, Aristotle says that the form signifies a such and not a this (τοιόνδε and not τόδε τι).⁴⁵

Given this evidence, it seems clear that the essences that are definable are universal. Aristotle does, however, make two other claims in the *Metaphysics* that, in conjunction with the claim (3) that definition is of the form, suggest that definable essences are individual.⁴⁶ These two claims are: (1) that substance cannot be universal, (2) that substance is form. From (1) and (2) we must conclude that form or essence is not universal; if, then, definition is of the form, then definition is of what is not universal, but individual.⁴⁷ Let us examine (1) and (2) in more detail.

(1) At 7.3 1029a29 of the *Metaphysics* Aristotle says that to be τόδε τι is most characteristic of substance. At 1038b8–9 he claims that no substance is a universal, or, more precisely, that no substance is predicated universally. Furthermore, at 1040b23–25 substance (in the sense of essence) is said to belong to nothing but itself and that which has it (i.e. to itself and to composite substance), of which it is the substance or essence. Aristotle adds that what is one cannot exist in many ways but what is common can exist in many ways. Hence substance as essence is a “this” and never a universal.

(2) The claims that form or essence is primary substance (ἡ πρώτη οὐσία) and that substance is form or essence are supported by several passages in the *Metaphysics* at 1032b1–2, 1037a29, and 1050b2. In the first of

of genera, are part of his discussion of the possibility of essences of compounds. He goes on to say that only species of genera will have essences, because only in these will the subject not participate in the attribute or have it as an affection or an accident.

⁴⁵ This, of course, is incompatible with the claim at 1029a27–30.

⁴⁶ There are passages in Aristotle’s biology that raise the question of individual forms acutely, most notably, perhaps, GA 4.3 767b25 ff. What I have to say here presupposes no particular interpretation of those passages. My claim here is just that the form or essence that is the object of definition will have to be universal.

⁴⁷ For a discussion of the problem of form as universal or particular in the *Metaphysics* in terms of the incompatibility of these three claims see James H. Lesher, “Aristotle on Form, Substance, and Universals: A Dilemma,” *Phronesis* 16 (1971): 169–178.

these Aristotle states, "... by form I mean essence and first substance." At 1037a29: "for substance is the internal form (τὸ εἶδος τὸ ἐνόν)." And at 1050b2: "... it is clear that substance, i.e. form, is an actuality." We can deduce from these passages that substance is form and that form is essence, and hence that substance is essence. In general in *Metaphysics* 7 and 8 Aristotle does not distinguish form from essence, nor does he distinguish either of these from substance. So, although in the *Posterior Analytics* Aristotle allows for a conception of essence such that it sometimes includes the efficient cause as well as the formal cause, in the central books of the *Metaphysics* Aristotle restricts essence to formal cause. In referring to substance as the form in the thing and as an actuality, Aristotle seems to have in mind in these passages individual essences, i.e. the essences of individuals, rather than the essence of some species, or universal essence. It seems clear, then, that if no substance is a universal and if essence is substance, then no essence will be universal.

Now, as I have said, if definition is of form *and* the universal, and form as substance *cannot* be universal, it seems that the universal form that is the object of definition cannot be substance, or cannot be substance in actuality.⁴⁸ The universal form that is the object of definition

⁴⁸ Some scholars have drawn a different conclusion, namely that the definable form is not universal but individual. Perhaps the most influential argument for this view is to be found in D.M. Balme's, "The Snub", 6-7. Notice that in order to make this argument, Balme has to explain how in a sense individual matter can be intelligible (since this was one of Aristotle's objection to individual form/matter composites as definable); he does so by suggesting that the individual is to be understood as frozen at a particular moment in time, thus without motion, and thus immune to the objection, given that that objection seems to be based on the view that matter involves motion. See also Balme's "Matter in the Definition: A reply to G.E.R. Lloyd," 50.

Rogers Albritton has argued that Aristotle intended to say that the form in an individual is both universal and individual in "Forms of Particular Substances in Aristotle's *Metaphysics*," *Journal of Philosophy* 54, no. 22 (1957):699-708. "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." (700) The problem, according to Albritton, is not so much how form can be universal, but how it can be particular. He suggests that there are two forms (or perhaps two aspects of form) in every sensible substance. These are the particular form, or the form in its particular aspect, which is quite literally one and the same as the composite individual (prefiguring Balme's view) and which therefore perishes with that individual, and the form of the species, or the form in its

can, however, be substance potentially.⁴⁹ The first suggestion that this might be the solution is found in 7.13, 1039a3–8, where Aristotle says, “Moreover, this [i.e. that no universal is a substance] is clear from the following. It is impossible that a substance should be [constituted by] substances present in actuality; for two things that are actual in this way will never be one actually, but if they should be two potentially, they will be one (for example, a double quantity [is constituted by] two potential halves; for the actuality [of the halves] divides [them]), so that if a substance is one it will not be [constituted by] substances present in it [actually].” This makes clear that universals cannot be actual substances, but raises the possibility that they may be potential substances that do somehow *constitute* actual substances as the parts of a whole. How might this work? If we take the parts of definition to be Aristotle’s model for the parts of substance, then these parts of substance will be like genus and differentiae.⁵⁰ Genus and differ-

universal aspect, which is separable but only conceptually separable from the composite individuals which it informs, and which does not perish with any one of them. Albritton argues that when Aristotle claims that nothing said universally is substance, he cannot mean that no universal is a substance, since he says that species are substances and says this in contexts where he can only mean something universal by “species”. He infers from this that “... nothing universal in relation to *species*, nothing common to species ... is the substance of any of *them* and that no such universal is a substance present in any species as one among a number of universal substances composing the species.” (705) Albritton then must ask whether a species can be the substance of its members; his response is that a particular individual has a particular essence as well as the universal essence that is the species, and that this particular essence is its substance. But he allows that Aristotle nowhere says this. He offers on Aristotle’s behalf another possible response to the question whether a species can be the substance of its members, a response in terms of a distinction in ways of being one: since the form of a species is one *in form*, and not in number, and the members of that species are one *in form*, the universal form can be their substance (although not their individual substances).

⁴⁹ Although I disagree on several points with his analysis of the sense in which universals are potential substances, I am indebted to Gerald J. Hughes, “Universals as Potential Substances: The Interpretation of *Metaphysics Z 13*” in *Notes on Book Zeta of Aristotle’s Metaphysics*, Study Aids Monograph 1, ed. Myles Burnyeat et al. (Oxford: Sub-faculty of Philosophy, 1979).

⁵⁰ At 1039a11–14 Aristotle suggests that we should understand the sense in which these parts are present potentially in the whole in the same way that units are present potentially in numbers. Since genera and differentiae are universals in virtue of belonging to many individuals, and since they are only potentially the individuals, this passage is some evidence that Aristotle’s view here is that genus and differentiae are the potential universal substances that make up actual substances.

entiae are universals, of course, said of more than one thing. If the parts of substance are to substance what genus and differentiae are to definition, then these parts will jointly constitute a single and unified whole although each part does not enjoy an existence separate from the whole. This is of course intended to resolve what Aristotle sees as an unacceptable aspect of Plato's division, that the parts of the definable form, which, as Forms, are actual substances, cannot together form a unity, so that the account of the definable form cannot form a unity.

Aristotle makes the connection between form that is universal and form that is potential most explicitly in *Metaphysics* 12.5. The context is a discussion of the ways in which it is true to say that everything has the same causes or principles. Aristotle claims that one way in which everything can be said to have the same principles is insofar as actuality and potentiality are principles of everything analogously. It is not only that what is potential or actual in different cases is different, although analogous, but also that in any given case what is actual can be either the form that is an element of a form/matter compound, or the moving cause external to (τί ἄλλο ἔξω) that compound (1071a5–17).⁵¹ Aristotle is distinguishing the sense in which something (wine, flesh, a person) can exist potentially at one time, and actually at another, in the same matter, from the sense in which, say, the person, can exist potentially in some matter, but actually *at the same time* in some different matter (that person's father's matter). He goes on to say that while some causes and principles can be stated universally, others cannot (1071a17–18). That is, the causes and principles of individuals cannot be stated universally, while the causes and principles of what is itself stated universally (e.g. of the syllable BA taken simply—ἁπλῶς—where to be taken “simply” means to be taken without the qualifications of the individual) can be stated universally (1071a20–24). This is very important for my purposes here, because it makes clear that causes and principles, including formal causes, can be universal.

Finally, Aristotle claims that the causes and principles of items in different categories are the same by analogy. The causes of different individuals in the same species are the same not analogously, but in form, although they too are different in the sense that, e.g. the form

⁵¹ Notice that this passage seems to support the view that it is sometimes necessary to include the efficient cause in a definition as that which actualizes what is potentially.

and matter and moving cause of one person will not be the same as that of another (1071a25–29).⁵²

There are then at least three senses in which causes and principles can be said to be the same: when they are the same by analogy, when they are the same in form, and when they are the same in number. So one sense in which everything has the same principles and causes is by analogy, another is in form or universal formula, and a third is in number (should there be a single moving cause of everything). When causes and principles are the same in form, Aristotle says that they are the same in the universal formula (τῷ καθόλου δὲ λόγῳ) (1071a29). And these universal causes, since they are contrasted with individual causes that are actual, are themselves potential (1071a18–21). Insofar, then, as the formal cause can be universal, the formal cause can be potential. What is important for the purposes of this argument is that Aristotle is allowing that there is a sense in which form (and not only matter) can exist potentially, namely the sense in which the form is universal.⁵³

At 7.14 1039a24–26 Aristotle makes clear that his objection to universals as substance/form is not so much to this claim in isolation, as to this claim *together* with the claim that substance/form is made up of genus and differentiae: “It is clear from these same remarks what follows for those who say both that the Forms are substances and that they exist separately, while at the same time they make the Form out of the genus and differentiae.” If definable forms are to be universal formulae (as suggested at 12.5 1071a29, as we have seen) of genus and differentiae, they will not also be separately existing substances. Rather, the relation between individual, separately existing substances, and these universal formulae will be that of potentiality/actuality. That is, the universal forms are potentially the individual, actual forms.

If, then, Aristotle does distinguish between form in the sense of the actual form in the individual which makes it what it is, and form in the sense of the universal form that is the object of definition, then the apparent inconsistency in his claims about form/essence, substance and the universal can be explained in terms of this ambiguity in the sense of form. That is, when Aristotle claims that no substance can

⁵² The moving cause of one person will of course be the same even in number as that of another person in certain cases, e.g. in the case of siblings.

⁵³ Notice also that this passage very clearly draws a distinction between individual forms and universal forms, and suggests that Aristotle is aware of wanting to be able to speak of both.

be universal, he means that no actual (and hence individual) substance can be universal. When he claims that form is essence and substance, that substance is the internal form, and that substance in the sense of form is actual, he means again that individual form is substance. When, however, he says that definition is of the universal and the form, he means that definition is of the universal rather than of the individual form.

These claims are supported by an examination of the contexts in which Aristotle speaks of form as particular or as universal. Typically, when form is described as particular Aristotle is engaged in the process of determining the nature of substance, for example at *Meta.* 7.3 1029a29, 7.13 1038b8–9, 7.16 1040b23–25. When, on the other hand, Aristotle speaks of form as universal the context is either a discussion of definition or a discussion of generation. For example, at 1035a7–8 Aristotle is concerned to establish what sort of parts (material or formal) belong in the definition; at 1030a11–13 he concludes that there is an essence only of a species of a genus because there is an essence only of those things the formula of which is a definition;⁵⁴ and at 1036a28–29 he is again concerned with the question of the sort of parts that ought to appear in the definition. In the two passages from 7.8 (1033b21–26; 1034a5–8) where the context is a discussion of generation, Aristotle's intention in remarking (implicitly) on the universality of form is in both cases to distinguish the role of form from that of matter in generation. He implies that form is universal by denying that it exists separately as a “this”, and by claiming that two distinct individuals are the same in species and have the same form (which, since it can be said of both, must be a universal). It is important to notice, however, that in this chapter Aristotle's concern is to deny, not so much that form is a “this”, but that form is a *separate* “this”. So Aristotle's claim is not that no form is a “this” but that no form is a separate “this” (against the Platonists).⁵⁵

⁵⁴ What seems contradictory is that in this same passage Aristotle maintains that an essence is a “this”.

⁵⁵ A.C. Lloyd in *Form and Universal in Aristotle* suggests a different distinction between two kinds of form. He argues that Aristotle might have distinguished between a metaphysical and particular form on the one hand, and an epistemological and universal form on the other. Lloyd's claim is that Aristotle held a *post rem* theory of universals and an *in re* theory of forms. That is, he takes Aristotle to have believed that the form of an individual (say, of an individual person) possessed by an individual man is not the same (numerically) as that possessed by any other person. What is common to individuals is either a predicate, like “person”, or the fact that “person” is truly predicable of

Now, if form is substance and substance is τὸδε τί, then it is clear that form in this sense is individual; but it must in another sense be universal, to serve as the object of definition. So form is individual insofar as it is one aspect of any composite individual, and universal insofar as it is an epistemological or logical entity. That form might be dual in this way is perhaps less improbable if we keep in mind that forms are causes, and that Aristotle believes that causes can be more or less general (*Physics* 2.3 195a27–b1).⁵⁶ Not only in its function as the substance of the individual, but also in its function as the intelligible aspect of the species, the form is a cause. At 1071a17–18 (in a passage that again is reminiscent of *Physics* 2.3) Aristotle tells us that it is possible to express some causes as universals. For while the individual (τὸ καθ' ἑκαστον) is the principle of individuals, the universal person is the principle of persons (1071a19–21). The point is that the cause is relative to that which is caused, and the description of the cause ought also to be relative to the description of the explanandum. If the objects of definition are species forms, and not individuals, definitions must be universals; and we know that species forms are the objects of definition, because Aristotle tells us so. Moreover, as we have seen, Aristotle, without denying that individuals can be causes, insists that universals are “more causal”. If immediate definitions are to function as the primary premises of demonstrative sciences, they must be “more causal” in this sense, i.e. they must define forms that cause more than one thing to be what it is.

all persons. These predicates are universals, and they belong to thought and language. Lloyd argues that Aristotle should be called a conceptualist (rather than a nominalist); this is to distinguish a non-realist theory of universals that takes universals to be common features of thought (which, for Aristotle, is logically prior to language) from a non-realist theory of universals which takes universals to be the common words of language (2). Lloyd defines a proposition as what sentences or utterances mean. Universals are concepts and belong to propositions; forms belong to things.

Lloyd's point is that one cannot identify the forms of things with universals without opening the way to a theory of forms that would be universal but not *in se*, and one of Aristotle's greatest concerns is to avoid such a theory. If universals properly belong to concepts or thought, then they are saved from being either entities separate from the individuals to which they are common, or arbitrary or conventional designations of common features. This latter is true only because for Aristotle language is subsequent to thought.

⁵⁶ Aristotle speaks of the prior and posterior cause, using as an example “a doctor” and “a man of skill”, which are more and less general descriptions of the same thing. He also says, “and always [causes are] the things which include the individuals,” (195a32).

We have seen (above, in Section I) that Aristotle, from the consideration of the problems associated with defining coupled items, concludes that only substance (by itself) is definable strictly speaking (*Meta.* 1031a1–2). That is, substance is essence, and essence is possible only in the case of non-compounded, non-coupled simple items, where these simple items cannot involve the relation between a substance and an attribute, even when that attribute is predicated κατ' αὐτό (in one of the senses of κατ' αὐτό) of the substance. Since there is an essence strictly speaking only of such simple items, there can be definitions only of such simple items, given that definition is of essence. This result is confirmed in 7.6, when Aristotle says that things that are stated “by themselves” are the same as their essences (1032a4–6); and in 7.11, when he argues that in the case of first substances the thing and its essence are the same, since the formula of the essence in such a case will include all the parts of the thing itself (1037a33–b4). First substances (in this context) are essences considered apart from matter, or, as Aristotle says, substances that are not stated as being in something else or in an underlying subject as matter (1037b3–4). The example of a first substance that Aristotle offers here is “curvature” and this, of course, is not something that actually occurs without matter (at least intelligible matter). This is evidence that Aristotle must be referring to essence considered without individual or determinate matter, rather than essence that does not occur in matter, when he speaks of first substance.⁵⁷ It also confirms my claim that Aristotle rejects the implication of the results of 7.5 that no natural substance could be defined. So long as natural substances can be considered apart from matter, where that consideration requires conceiving of them without individual or specific matter, they can be defined.

The universal, definable form is substance only potentially. This definable form is the specific form, constituted by the genus and the differentiae. So the species itself is potential in the sense that there are indefinitely many individuals that could be members of that species, although the species name is not the name of something that they share in com-

⁵⁷ I am not claiming that Aristotle believes there to be nothing completely simple, nothing which could be defined somehow without appeal to genus and differentiae, but only that in Books 7 and 8 of the *Metaphysics* he is not concerned with such absolutely simple items.

mon. It is not an entity at all, but a potentiality that could be actualized in indefinitely many ways.⁵⁸ Because the specific form is potentially the essence of some individual member of that species, it is potentially a substance. The genus, on the other hand, is at another remove from the individual. It must be actualized into species that are themselves potentially but not actually individuals. While, then, the genus, like the species, is a potential substance, and a universal form, the sense in which it is potentially substance is different from the sense in which the species is potentially substance.⁵⁹ This is as we might expect, since we have seen that potentiality and actuality are analogously the same principles in different cases. The relation of genus to species is analogous to, but not identical with, the relation of species to individual. The point is that the object of immediate definition, simple substances, will be universal (rather than individual) forms or essences, the simplicity of which is guaranteed by the potentiality of one part relative to the actuality of the other. The species-essence defined is universal as a function of its potentiality relative to the individuals of the species-essence defined.

I should mention that some have attempted to resolve the problem of universal versus individual form by distinguishing between species and genus. Such attempts depend on arguments to the effect that Aristotle differentiated different kinds of universals, and allowed that some can be substance. But that is difficult to reconcile with the force of the claims in 7.13 that *no* universal is a substance. Moreover, when such attempts rely on arguing that it is different to be universally predicable and to be a universal, they flounder because there is no sense for Aristotle in which something can be a universal except by being predicable universally.⁶⁰ Even if the usage of the *Metaphysics* supported such a dis-

⁵⁸ On this view, essences "... are substances just when they are the essences of actual individuals; ... Taken as universal [that is, as species or as specific forms] essences are no more than the potentiality of there being substances; this potentiality is identical in definition with the relevant set of individuals, but is identical with them in no other way." Hughes, "Universals as Potential Substances: The Interpretation of *Metaphysics* Z 13," 124.

⁵⁹ Although we must bear in mind that genera and species are relative terms, so that a genus relative to one item may be a species relative to another; what I say here of species is true only of the ultimate species, which cannot be further divided into species.

⁶⁰ M.J. Woods tried to resolve the problem by drawing a distinction (noted by Albritton) between saying that no substance is a universal and saying that no substance is predicated universally, in "Problems in *Metaphysics* Z, Chapter 13," in *Aristotle: A*

inction (and this is doubtful), there is nothing in the text to give meaning to this distinction. To be καθόλου just is to be καθόλου λεγόμενον. That is, Aristotle has no sense of “universal” that is not “belonging to many” or “predicated of many”, and he does not distinguish between belonging to and being predicated of.⁶¹ And when such attempts rely on

Collection of Critical Essays, ed. J.M.E. Moravcsik (Indiana: University of Notre Dame, 1967), 215–238. According to Woods, species, which are not predicated universally, are substances, while genera, which are predicated universally, are not substances. Woods understands 7.13–16 as centered on a criticism of Platonic Forms. In this context, as he sees it, Aristotle is concerned to demonstrate that form as he conceives of it is not *predicated universally* (by “predicated universally” Woods means predicated of a number of different kinds of things, i.e. predicated of things in different species) (225). The argument of 7.13–16 on Woods’ view is that being universal is not a sufficient condition for being a substance; a universal can be a substance only if it is not predicated universally (216). The difference between the members of a species and the members of a genus is that the former are one in form, while the latter are by definition different forms. For this reason, genera are predicated universally of species and of individuals, whereas species can only be predicated of matter. Species are predicated of matter and of nothing else because until something is picked out as being of a certain sort, nothing at all can be said about it; specific form is itself such that it cannot be predicated of anything that is already an individual. “I must already regard things as possessing form before I can think of objects as a genuine plurality,” (237). Woods believes, then, that we can distinguish species and genera thus: species are one in form and genera are not, because without species there would be no individuals at all, nothing of which other things might be predicated, and for this reason species cannot be said to be predicated of a plurality. It should be noted that Woods and Albritton have different reasons for distinguishing species from genera. The question is why a species can be substance when a genus cannot. Albritton argues that either i) each individual has a particular form which is its substance and which, unlike a genus, is not a universal or ii) the universal form of person is not one in number, but one in form, and that people are one in form, and that therefore the specific form may be the substance of each person. Since Aristotle will not accept that a genus is a substance, Albritton distinguishes between species that are the substances of the particulars they encompass, and genera that are not the substances of the species they subsume. He claims that, while the individual members of a species are one in form, the individual members of a genus are not one in form and hence that the genus, which is one in form, cannot be the substance of the member species. Woods disagrees, on the grounds that a genus is not one in form, and cannot be one in form, since it is capable of further differentiation. Woods points out that Aristotle says unqualifiedly that no substance is predicated of a plurality of objects, and not that no substance is predicated of a plurality of objects except in a case where the many of which it is predicated are one. Besides, just as there is a sense in which the members of a species are one, so too there is a sense in which the species of a genus are one (although not one in form), so that this argument does not, in itself, distinguish species from genera.

⁶¹ This is the point on which Lloyd founds his solution: one cannot make sense in the context of Aristotle’s work of a universal entity; to be universal is to be said of many things, and hence the universal is a logical rather than a metaphysical concept for Aristotle (*Form and Universal in Aristotle*, 3).

arguing that it is different to be one in kind and to be one in number they flounder because while Aristotle would certainly agree that some universals are one in kind and others are not, he is emphatic that *no* universal is a substance.⁶² When, for example, Albritton suggested that the difference between being one in number and one in kind may offer the solution to the tension between form as individual and form as universal, Woods pointed out that it does not solve the problem to say that the individuals which have a common form are one in form. The form shared by the individuals of a species need not be an individual rather than a universal form, since the individuals remain resolutely particular in themselves.⁶³

⁶² A.R. Lacey, in "Ousia and Form in Aristotle", *Phronesis* 10 (1965): 54–69, argues that while no substance in one sense (no substance that is a composite individual) is a universal, substance in another sense (substance as the form/essence of composite individuals) is a universal. Lacey claims that in *Metaphysics* 7 Aristotle never makes clear the difference between form and universal (60). (Ross, among others, has understood Aristotle in the discussion of the unity of definition at 7.6 to be saying that species alone is form, while all the higher genera are universals. But Lacey points out that if this were Aristotle's position, his notion of specific form would be open to the same objection which he brings to bear against the Platonic Forms (64).) Lacey seeks the solution to the difficulty in the distinction between being one in kind and one in number, and in allowing that form is universal in some special sense. It is obvious, even tautological, that form is one in kind. The particulars of a species are one in form because while being many in number they have one form. The form is consequently one in number also, because one form cannot be many. The question, according to Lacey, is whether form is one in the sense that it is one entity (the way that a particular is one entity), or in quite a different way, as an abstraction, which does not name any thing in particular but signifies what kind of thing something is. Lacey appeals to the *Categories*, 3b10ff. where Aristotle says that secondary substances signify a qualification rather than a "this" and tries to apply this to the doctrine of the *Metaphysics* by maintaining that form is universal precisely because it is not an entity but that which makes an entity what it is: "What Aristotle ought to be saying in the *Metaphysics* is that terms like "man" are not the name of an *ousia* in the sense in which one can talk of an *ousia* as an object, but are used to say what the *ousia* of an object is ... what Aristotle means at 1049a34 is not that what is being predicated is a "this" but that the effect of predicating it is to show that the matter is constituted into a "this", e.g. this horse." (66).

⁶³ Lacey has, in effect, the same objection to Albritton's proposed solution when he points out that if one says both of a form and of a collection of individuals which share a form that they are one in form, one must be careful to distinguish senses of oneness. Lacey's view is that form is one not in the sense that an entity (that is, a composite individual) is one, but is one "as an abstraction". Both a form and the collection of individuals which have the form in common are one, not as an entity (neither the form nor the collection of individuals is an entity), but as an abstraction. Lacey thinks that once this is clear one can argue that a form is one kind of substance and is a universal, and that composite individuals are another kind of substance, and of course

V. *Conclusion*

I have argued in this chapter that there is continuity between the discussion of definition in the *Posterior Analytics* and the discussion of the same subject in the *Metaphysics*. Aristotle does not, in the *Metaphysics*, reject the conclusions of the *Posterior Analytics*, although he does make more precise certain of those conclusions. In particular, I have claimed that the discussion of definition in the *Metaphysics* is restricted to immediate definition, which Aristotle takes to be definition strictly speaking. The motivation for this restriction has to do with a concern about the simplicity and unity of definable form, a concern expressed in *Metaphysics* 7.4–5. I have argued that we should understand the conclusion of these chapters—that nothing compound or coupled can be defined—not to imply that the objects of definition proper (immediate definition) cannot have parts, but rather that those parts must stand in a particular relation to one another, a relation different from the relation of the parts of either coupled or compound items. Aristotle believes that no individual composite substance can be defined, but I have argued that he also believes that the essences that are definable forms have a part (expressed by the genus in the definition) that represents the matter that is necessary to the kind, by being potentially what it is actually when informed by the other part (expressed by the differentia(e) in the definition). While the unity of the definable form and its immediate definition depends on the genus as an element of potentiality in the form and in the definition, that element of potentiality does not represent individual or even specific matter, but a less determinate, more universal matter. I have argued, further, that it is not only that one element of the definable form and immediate definition is universal and thus potential, but that the whole is universal and potential, and must be in order to satisfy the requirements Aristotle places on essential form and on definition.

One implication of the discussion of universality in immediate definitions is the effacement of the distinction between the knowledge that we have of first principles and the knowledge that we have of conclusions derived from demonstrative syllogisms, the effacement of the distinction

are individual. So that one kind of substance is universal but another kind is particular. As noted above, however, this account is not compatible with Aristotle's strong claim that no substance is universal.

between νόϋς and ἐπιστήμη. This is because, if we know the causes of simple items and know that those causes could not be otherwise (i.e. that they belong necessarily to those simple items), then the knowledge we have of first principles seems to meet the requirements of ἐπιστήμη as set out in the first book of the *Posterior Analytics*. This may be an advantage, rather than a disadvantage, of my interpretation. That is, the distinction between ἐπιστήμη and νόϋς as kinds of knowledge can be maintained as a methodological distinction; the way we arrive at knowledge of first principles will be different from the way in which we arrive at knowledge of demonstrable conclusions. At the same time, if the knowledge of first principles shares with the knowledge of demonstrable conclusions a grasp of the cause and of the necessity of that cause relative to that which it causes, then the knowledge of first principles may provide a better basis for the certainty of the knowledge of demonstrable conclusions than is often supposed to be possible. I will return to this question in Chapter Five below.

CHAPTER FIVE

STATING THE ESSENCE IN THE *TOPICS*

I. *Questions from the Metaphysics and the Posterior Analytics*

In the first four chapters I have been concerned with two questions about definition: (1) how can the definitions that function as first principles of demonstrative science have a certainty adequate to that science? (2) given the requirement for successive differentiation and the requirement for non-dichotomous division, how can definitions have the unity that Aristotle attributes to them? I have been arguing with respect to the first question that the certainty and the unity of immediate definitions are ensured by the causal relation between subject and predicate in immediate definitions. As we saw in Chapter Four, Aristotle takes the unity of definitions to be ensured in the first instance by the entailment relation that holds between differentia(e) and genus. The relation of genus to differentiae, while it is analogous to the matter/form relation of the composite individual, does not represent that relation; rather, it represents the relation between the parts of the essence of a kind captured by the definition. The entailment relation between the parts of the definition itself mirrors the relation of actualization that holds between one part of the essence (represented in the definition by the differentia(e)) and the other (represented by the genus). That the differentia(e) entail(s) the genus does not, by itself, guarantee unity, and therefore does not by itself guarantee the certainty of immediate definitions—the examples of attributes that entail the genus but do not divide the genus (odd/even of number; male/female of animal) make that clear. Aristotle suggests then that in addition to making sure that a differentia or set of differentiae entail the genus, we should make sure that the entailment obtains because the differentiae divide the form of the genus and not only the matter. What is important with respect to the second question is that Aristotle indicates that only a set of differentiae, rather than a single differentia, will be able to divide the form of a genus, so that the differentiae that mark off a species will be one rather than many, and their ability to divide the form of the genus will be the

evidence of that oneness. It is also important that the unity of the parts of immediate definition will provide the certainty required by first principles; that immediate definitions are necessary absolutely is evidence of that.

In this chapter I return to a question raised in the *Analytics* and the *Metaphysics*, if only indirectly. The question concerns the genus/differentiae structure of definition, and the claim that a well-constructed definition will be a statement of the essence, and not merely a means of classifying kinds. It is: Why does Aristotle believe that the genus/differentiae structure of immediate definition, provided by an accurate division, will reveal the essence? I argue that although this is a question with metaphysical implications, Aristotle does address it in the *Topics*, and his claims in this treatise confirm what we have learned from the *Analytics* and the *Metaphysics*.

This question arises from certain assumptions that Aristotle seems to make in the discussions of definition in the *Analytics* and the *Metaphysics*. In both the *Posterior Analytics* and the *Metaphysics* Aristotle assumes that immediate definitions will be formulated as statements of the genus and differentiae, and that a method of division will be the correct method for arriving at such definitions. So, at *Posterior Analytics* 2.13 96b15–97a6, we find instructions for conducting divisions, with explicit references to genera and differentiae. And at *Metaphysics* 7.12 1037b27–30, Aristotle tells us that in definitions formulated according to division there is nothing except the first genus (where first means first in a division) and the differentiae.¹ One assumption Aristotle makes, then, is that the parts of an immediate definition will be genus and differentiae. His reasons for making that assumption start to become apparent in the *Metaphysics*, where we see that the unity of definitions relies on the entailment relation of differentia and genus, and that the differentia divides the form and not the matter of the genus. If the unity of definition requires an entailment relation between the parts of definition, and if that entailment relation can hold only between differentia and genus, then differentia and genus must be the parts of definition. But we might still ask whether any of the technical rules Aristotle provides in the *Topics* for the formulation of definitions will pro-

¹ This passage may suggest that there is some method other than division for arriving at definitions, but if there is such a method—and I am doubtful that Aristotle thinks there is—he does not describe it in the *Metaphysics* or the logical works.

vide us with a way of picking out the set of differentiae that will have the unity necessary to divide the form of the genus, and thus constitute a unity with the genus. I do not think he does provide us with such rules, because he believes that the recognition of the appropriate set of differentiae is ultimately an empirical rather than a logical question.

Aristotle makes a second assumption in the *Analytics* and the *Metaphysics*: that a well-constructed definition will reflect the essence of the definiendum. In the *Posterior Analytics*, as we have seen, he distinguishes different kinds of definition, at least one of which is an indemonstrable statement of what it is to be something, that is, a statement of the form, or formal cause, of something (2.8–13; see especially 2.10 93b29–30, 94a9–10). And, as we have seen in Chapter Four, the discussion of definition in Books 7 and 8 of the *Metaphysics* suggests that Aristotle there too understands definition to be a statement of the essence as the formal cause (e.g. 8.1 1042a17–18). But why does he think that the parts of an essence, the parts of the formal cause, are represented by the genus and differentia(e)? Is the answer to that question just that the parts of the essence must be whatever parts can constitute the right kind of unity? If this seems unsatisfactory, it is surely because Aristotle's suggestion is always that definition captures essence in some robust way—that if we know what the definition is, we will know what the essence is, and not merely what the formal structure of the essence is.

I am going to argue that the *Topics* does address the question that arises but is answered only incompletely in both the *Metaphysics* and the *Posterior Analytics*, namely, the question why a genus/differentiae structure in a definition reveals essence. That is, on my view, the *Topics* can clarify certain key assumptions or presuppositions about definition in the *Posterior Analytics* and the *Metaphysics*.²

In particular, the *Topics* tells us why Aristotle believes that the genus/differentiae structure provided by division is the only structure that can make clear the essence. The *Metaphysics* concerns itself with the unity of the genus/differentiae structure, and that provides some evidence

² My claim is not that Aristotle leaves open certain questions in the *Posterior Analytics* and *Metaphysics* that he subsequently answers in the *Topics*. That is, my claim is not a claim about the order of composition of the *Topics* relative to other treatises. My point, rather, is that Aristotle has reasons for the assumptions he makes in the discussions of definition in other works, and that those reasons are supported by some of the rules and their justifications in the *Topics*.

for the appropriateness of stating the essence by stating the genus and differentiae of the definiendum—since essence, as the object of definition, must above all have unity. And in the *Posterior Analytics* Aristotle addresses the question of how to proceed with a division, but he does not tell us why we should believe that division and the resulting genus/differentiae structure of a definition will reflect the essence. The *Topics*, I argue in this chapter, offers another reason why the parts of the essence must be represented by the genus and differentia(e)—the reason is found in the status of genera and differentiae as prior to and more knowable than the essence itself. Another way to state the question about definition that the *Topics* can answer is, why is it that a well-constructed definition will allow us not only to distinguish and classify kinds, but also to know kinds by knowing their essence? Or, why believe that the parts of a well-constructed definition will reflect the parts of the essence? In the *Metaphysics*, in particular, the discussion of definition often seems to assume, rather than to argue for, the ability of definition to articulate essence. But the claim in the *Topics* that the genus and differentiae are prior to and more knowable in an unqualified or absolute way than the species is a helpful elaboration of the claim in the *Metaphysics* that the genus and differentiae are prior to the species. In the *Metaphysics* the point about priority is causal; to say that priority involves being more knowable absolutely links the special causality of immediate definition with the absolute intelligibility of immediate definition.

II. *Can the Topics concern metaphysics or science?*

Before I turn to examine the discussion of definition as stating the essence in the *Topics*, I want to raise the question whether it is justifiable to use the *Topics* to resolve certain questions posed by the *Analytics* and the *Metaphysics*. My aim is to show that there is no a priori reason to suppose that the *Topics* cannot be addressing questions of ontology, or questions in the domain of certain knowledge. Consider the objection that, precisely because the *Topics* is a work concerned with definition, it cannot be a work concerned with problems that Aristotle would treat as metaphysical or as scientific. This objection takes different forms. First, some have claimed that Aristotle is not, in the *Topics*, concerned with ontology. Solmsen, for example, says, “Aristotle’s dialectical syllogism is thus seen to be directed towards the same object as Plato’s

dialectical diaeresis. Both are primarily concerned with the validity of definitions.”³ He goes on to assert, however, that,

The truth is that what Aristotle has really taken over is the logical scaffolding of the diaeresis, not at all the ontological or metaphysical edifice ... His concern is with definition as such, not with definition as reflecting the complex structures of Being ... For the theory of definition which underlies his *Topics* Aristotle has isolated the conceptual or logical ingredients of the diaeresis ... the relation between species and genus as well as that between lower and higher genera is stated in baldly logical terms; the language is precise but somewhat colourless, in both respects appropriate to the purely logical point of view from which these relations are now studied.⁴

The “purely” in this last sentence is not justified. We may grant that Aristotle is interested in the logical relations between species, genera and differentiae, without thereby granting that he has no interest here in the ontological relations among these items. We may grant that Aristotle’s language is precise and colourless, without thereby agreeing that the relations he describes are purely logical; Aristotle’s language, even when he is clearly engaged in ontology, as in the *Metaphysics*, is not characterized by colour.⁵ Solmsen, in distinguishing between the “logical scaffolding of the diaeresis” and “the ontological or metaphysical edifice” suggests that Aristotle’s concern with definition in the *Topics* is not the same as his concern with definition in the *Metaphysics*, where that concern clearly pertains to the “metaphysical edifice.” But the terms used in the *Topics* for the discussion of essence are just those of the *Metaphysics* (see, for example, in *Topics* 6.5 Aristotle’s use of οὐσία and τὸ τί ἦν εἶναι). That Aristotle is concerned with “logical scaffolding” in the *Topics* is not evidence that he is concerned with nothing else in the *Topics*. And that he talks about substance and essence in the discussion of definition in the *Topics* is some positive evidence that he is concerned with the very matters that are under consideration in the central books of the *Metaphysics*.

The view that Aristotle cannot be interested in ontology in the *Topics* focuses on the difference between Plato’s dialectic (in the *Republic*

³ Solmsen, “Dialectic without the Forms,” 57.

⁴ Solmsen, 61–62.

⁵ In general, Solmsen’s evidence is inadequate to his claims. He points to the passage at 143a15–28 to demonstrate that Aristotle’s exclusive interest is in the logical relations. The passage does indicate an interest in the logical relations, but not to the exclusion of an interest in ontological relations.

and in the *Sophist*) and Aristotle's dialectic. Solmsen speaks of the "extraordinary and almost appalling loss of status" suffered by dialectic at Aristotle's hands. From being "Queen of the Sciences" with Plato it has become a "handmaid" to the philosophical and mathematical subjects.⁶ It is clear that Aristotle's dialectic is not simply the same as Plato's dialectic; it is *not* clear that because Plato's dialectic is concerned with ontology Aristotle's cannot be.

The second form of the objection is that the *Topics* cannot be concerned with science or scientific knowledge just because it is a treatise on dialectic. At 1.2 101a25–28 Aristotle famously distinguishes three uses for the treatise: intellectual training (γυμνασίαν), casual encounters (τάς ἐντεύξεις), and philosophical understanding or scientific knowledge (τάς κατὰ φιλοσοφίαν ἐπιστήμας).⁷ There are two respects in which the treatise is useful for the philosophical sciences. First, it will make us better able to detect what is true and what is false. Second, it will allow us to arrive at the indemonstrable first principles of the sciences (1.2 101a34–37). At 8.14 163b9–12 Aristotle elaborates on the first of these uses, "Moreover, as contributing to knowledge and to philosophical wisdom the power of discerning and holding in one view the results of either of two hypotheses is no mean instrument; for it then only remains to make a right choice of one of them." But Aristotle does not seem to elaborate on the claim that the treatise on dialectic will be useful for determining the first principles of the sciences. Many commentators have found an irreconcilable tension between the requirements for dialectical propositions (which after all are merely reputable), and the requirements for the first principles of demonstration (which include certainty). And yet dialectic is supposed to be able to produce these first

⁶ We should recall that Aristotle's own view of the relation of logic to other philosophical disciplines is unclear. If it were a science it would be a theoretical science, but it may not be a science at all, but rather (as Solmsen is assuming) a tool or prerequisite kind of knowledge for the sciences (*Meta.* 4.3 1005b3).

⁷ Mansfeld connects these various uses by pointing out their reliance on *problems*: "According to Aristotle, δόξαι are relevant in the context of problems. In order to discuss, inquire into, state in an adequate way, and solve problems one should first find out what the exact nature of the question at issue is, and next take the views of others into account ... Problems and their solution are what the various philosophical disciplines are concerned with. Furthermore, what holds for the problems which are discussed in science also holds for the *propositions* which are the starting-point of dialectical debate, or discussion. Aristotelian dialectical techniques can be used in two ways, viz. either for the purpose of training or in order to further the formulation and discussion of problems in theoretical scientific research," (J. Mansfeld, "Physikai doxai and problemata physika from Aristotle to Aëtius (and Beyond)," 67).

principles of demonstration.⁸ Aristotle himself clearly thinks that definitions arrived at by dialectical methods can be scientific, i.e. can be used as the first principles of sciences in order to demonstrate scientific knowledge. Evidence for this can be found at *de Anima* 1.1 403a29–b2, where Aristotle says, "... a physicist would define an affection of soul differently from a dialectician; the latter would define, e.g. anger as the appetite for returning pain for pain, or something like that, while the former would define it as a boiling of the blood or warm substance around the heart. The one assigns the material conditions, the other the form or account ..." It is the dialectician who assigns the form or account, hence the dialectician who states the formal cause; and stating the cause is characteristic of science. The important point is that the dialectician assigns *some* cause, and hence has a claim to doing science. More direct evidence that Aristotle believes that dialectical methods can be scientific is at *Sophistical Refutations* 170a27. Here Aristotle says that the dialectician will have to have scientific knowledge of everything. This certainly implies that the methods of science and the methods of dialectic cannot be in conflict, and, more than that, that science and dialectic are intertwined.

Despite this evidence, some object that Aristotle cannot, in the *Topics*, be concerned with scientific knowledge, with knowledge of causes, because the definitions discussed in the *Topics*, like all dialectical propositions, are inadequate to act as first principles of demonstrative syllogism.⁹ I shall suggest that the discussion of definition in the *Topics*

⁸ There is an even more fundamental issue about the role of dialectic in philosophy. Daniel Devereux describes two extremes of opinion on the matter: "Some argue that Aristotle retains the Platonic conception of dialectic as the method of philosophical inquiry; not only is it the preferred method in dealing with subjects that do not admit of scientific demonstration, e.g. ethics and metaphysics, but even in the sciences it provides the only possible justification for their first principles and undergirds our confidence in scientific procedures and methods [Nussbaum]]. At the other extreme are those who contend that Aristotelian dialectic is a rule-governed method of discussion whose aim is simply to increase one's ability to argue effectively on both sides of a question [Moraux, Brunschwig]." "Comments on Robert Bolton's 'The Epistemological Basis of Aristotelian Dialectic,'" in *Biologie, logique et métaphysique chez Aristote*, ed. D. Devereux and P. Pellegrin (Paris: Éditions du CNRS), 264.

⁹ See G.E.L. Owen, "Tithenai ta Phainomena" in *Aristote et les Problèmes de Méthode*, ed. S. Mansion (Louvain: Publications universitaires, 1961) 83–103, and "Aristotle on the Snares of Ontology" in *New Essays on Plato and Aristotle*, ed. R. Bambrough (New York: The Humanities Press, 1965) 69–95; T. Irwin, *Aristotle's First Principles*; Robert Bolton, "Definition and Scientific Method in Aristotle's *Posterior Analytics* and *Generation*

tells us something about Aristotle's reasons for believing that definitions constructed dialectically will be adequate for the formulation of first principles for demonstration. I shall examine in particular the parts of the inquiry concerning definition in Book 6 that treat of stating the essence, in order to show that these technical rules for the practice of dialectic contain substantial information about what it is to be an essence.¹⁰

I should make clear that in calling a *topos* a "technical rule" I am not implying that it has no philosophical content. It is clear that many *topoi* include a rule or strategy together with a principle justifying that rule; the principle typically makes a philosophical claim. The philosophical claims I take to be statements of Aristotle's philosophical commitments.¹¹ Consider, for example, the passage at *Topics* 6.6 143b11–24:

Moreover, see if he divides the genus by a negation, as those do who define a line as length without breadth; for this means simply that it has not any breadth. The genus will then be found to partake of its own species; for, since of everything either the affirmation or the negation is true, length must always either lack breadth or possess it, so that length as well, i.e. the genus of line, will be either with or without breadth. But length without breadth is the account of a species, as also is length with breadth; for without breadth and with breadth are differentiae, and

of *Animals*," in *Philosophical Issues in Aristotle's Biology*, ed. A. Gotthelf and J.G. Lennox (Cambridge: Cambridge University Press, 1987), 120–166, and "The Epistemological Basis of Aristotelian Dialectic." Irwin and Bolton try to some extent to reconcile the tension between the requirements for dialectical propositions and the requirements for the first principles of demonstration.

¹⁰ The sort of view with which I am sympathetic is that of Moreau, who says, speaking of Aristotle's dialectic, "La dialectique, l'art de la discussion en général, a certes d'autres fonctions; mais c'est dans la métaphysique qu'il trouve son application la plus haute. Après avoir servi de gymnastique intellectuelle et d'instrument d'épreuve, avoir rempli une fonction d'entraînement et une fonction probatoire, peirastique, elle tourne vers un rôle gnosologique: elle ouvre la voie à la connaissance qui par sa visée dépasse les possibilités de la démonstration, ne peut atteindre à une certitude apodictique, et doit se contenter de la vraisemblance dialectique." J. Moreau, "Aristote et la dialectique platonicienne," 88–89. See also E. Weil, "The Place of Logic in Aristotle's Thought," in *Articles on Aristotle*, Vol. 1, ed. J. Barnes, M. Schofield and R. Sorabji (London: Duckworth, 1975), 88–112: "Now it is clear that topics and ontology are simply two aspects of one reality: Aristotle says as much himself in one remarkable chapter (*Top.* IX 9, 170a20ff.); and this is corroborated by the part played in both disciplines by such fundamental notions as substance, accident, property, genus and definition." (108). Contrast this with the view of J.D.G. Evans, *Aristotle's Concept of Dialectic*, 36.

¹¹ For the distinction between strategy and principle in a *topos* see Eleonore Stump, *Boethius's De topicis differentiis: Translation with notes and essays on the text* (Ithaca: Cornell University Press, 1978), 168–170.

the genus and differentia constitute the account of the species. Hence the genus will admit of the account of its species. Likewise, also, it will admit of the account of the differentia, seeing that one or the other of the aforesaid differentiae is of necessity predicated of the genus.

Aristotle goes on to say that this rule is useful against those who posit Ideas. The technical rule in this case is: check whether a definition is arrived at through a division by a negation, because such a definition will be ill-formed. The philosophical principle justifying this rule is that genera cannot be identical with any of their species. If one divides a genus by a negation (with/without breadth), then one is committed to allowing that the genus “partakes” of some one of its species—i.e. that it is indistinguishable from some one of its species (because everything “partakes” of one side or the other of a negation; and in this case, the genus must be with or without breadth). And if it partakes of one of its species, then the genus in question cannot be the genus of the other species. This passage thus illustrates a metaphysical as well as a logical point about the relation of a genus to its species. The general point is that if we read the *Topics* with the expectation that Aristotle might make philosophical claims of substance in the course of explaining the technical rule of a *topos*, we will, at least sometimes, find that expectation satisfied.

III. *The Topics and definition*

One reason to think that the *Topics* may help us to understand the discussions of definition in the *Analytics* and the *Metaphysics* is just that definition is a central subject of the *Topics*, a subject with which most *topoi*, directly or indirectly, are concerned. A work so fundamentally preoccupied with definition cannot fail to illuminate the claims of other discussions of definition, however technical it may appear at first glance. To support this claim that definition is a primary focus of the *Topics*, let me first say something about how Aristotle introduces definition in the *Topics*, and then say something about the similarities that connect the account of definition in the *Topics* to that in the *Analytics* and the *Metaphysics*.

In the *Topics*, definition is first mentioned as one of the four items which a proposition or a problem might make clear; the other three are: property, genus or accident. Propositions are what arguments come to be out of, and problems are that about which we reason (1.4 101b15–

16). Propositions differ from problems only τῷ τρόπῳ: “Is biped animal the definition of person?” and “Is animal the genus of person?” are Aristotle’s examples of propositions; “Is biped animal the definition of person, or not?” is his example of a problem. So, in principle, either a problem or a proposition might make clear a definition. Both problems and propositions make clear definitions not by stating the definition as accepted, but by asking about the definition as it is formulated.

Aristotle defines definition in the *Topics* in a way that supports the suggestion that the account here underlies the account of definition in the *Analytics* and the *Metaphysics*. Definitions, Aristotle stipulates, are phrases (λόγοι) signifying the essence (τὸ τί ἦν εἶναι) of something (1.5 101b38). This account of definition makes two distinct points, but I think those points are connected. Saying that definitions are phrases is a way of saying that definitions cannot be simply names (ὀνόματι), but must be complex linguistic formulae (λόγος τίς) (1.5 102a2–5). The complexity of the linguistic formulae that are definitions is precise: such formulae must be constituted by the genus and the differentiae (1.8 103b15–16).¹² If this is what Aristotle means in saying that definitions are phrases at 101b38, then we have the connection with the claim in the same passage that definitions signify the essence. The genus and the differentia(e) that mark off the object of definition are the essence of that object, so a phrase that is complex in the precise sense that it states the genus and differentia(e) is a phrase that states the essence. That a definition is a formula that states the essence by stating the genus and the differentiae is precisely the account of definition that we found in the *Analytics* and the *Metaphysics*.

The propositions that make clear definitions will be dialectical propositions, of course, that is, propositions that represent “reputable opinions”, which are those opinions that are reputable to all people, or most people, or wise people (1.10 104a8–9). The point of the technical rules is to suggest ways to submit a definition to a test, as a means of providing the interlocutor in a dialectical debate with help either in formulating the definition in the original proposition or problem in such a way that it cannot be defeated, or, alternatively, in defeating a

¹² “La définition se compose du genre et de la différence. Cette articulation est partout impliquée dans les *Topiques* et mentionnée explicitement à diverses reprises (e.g. 144a11; 153a18); visiblement, Aristote la considère comme établie.” É. de Strycker, “Concepts-clés et terminologie dans les livres ii à vii des *Topiques*: Héritage de l’Académie et apport personnel d’Aristote,” in *Aristotle on Dialectic: the Topics*, Proceedings of the Third Symposium Aristotelicum, ed. G.E.L. Owen (Oxford: Clarendon, 1968), 144.

definition proposed by someone else. The immediate definitions that act as first principles of demonstrative syllogism cannot be merely reputable or probable propositions; they must have the certainty required to guarantee the certainty of demonstrative syllogisms. How does Aristotle suppose that definitions that are made clear initially only as reputable opinions can come to have the certainty necessary for them to function as first principles in demonstrative science? We have seen that in the *Metaphysics* he grounds the certainty of immediate definitions on their necessity, which is a function of the simpleness of the objects of immediate definition, where that simpleness is manifested in the unity of the parts of definition. In the *Topics* the certainty of definitions is a function of the status of genus and differentiae as prior to and more intelligible than the species they define; where definition is necessary absolutely in the *Metaphysics* it is knowable absolutely in the *Topics*; I believe these are related claims. I will say something of this in the next section.

Aristotle allows that any claims about sameness or difference can be said to be definition-like (ὁριστὸν), although not strictly definitions, because refuting a definition is largely a question of establishing the difference of two things alleged to be the same (1.5 102a5–16). Indeed, arguments about properties, genera and accidents are all in a sense about definitions (τρόπον τινὰ ὁριστῶν), too, since such arguments are all useful in refuting a definition. Since propositions and problems always make clear a definition, a property, a genus, or an accident, every proposition and problem is, more or less directly, concerned with establishing or defeating some definition. In a sense, then, the *Topics* as a whole is concerned with definition.

IV. *Stating the essence in the Topics*

In order to answer the question that begins this chapter—how is the structure of genus/differentia(e) in a definition supposed to make clear the essence?—I want to focus on one part of the inquiry concerned with definitions that Aristotle embarks on in Book 6 of the *Topics*. That part asks whether the definition in question (the definition “made clear” by a proposition or a problem, and established as the subject of a dialectical discussion) states the essence of the object to be defined. Before we consider just how Aristotle understands stating the essence in the *Topics*, and how that understanding might help to answer the

question posed, let me situate the discussion in the context of the inquiry into definition and its parts, as Aristotle introduces them in *Topics* 6.1.

The inquiry concerned with definitions has five parts. These parts are five ways in which one might defeat a definition, and also five very general tests that any definition must pass in order to count as a good definition (and, in some cases, in order to count as a definition at all). The five parts each include a manifold of particular tests. The parts of the inquiry are such that they ought to be administered in sequence to a definition; one introduces the second part only if a definition has passed the tests that belong to the first, and the third only if the tests of the second have been passed. The tests are progressively more difficult; the mistakes that the parts check for are increasingly subtle. So, for example, in 6.2–3 Aristotle discusses the ways in which a definition might fail to be elegant by being unclear or redundant. He says in this context that it is generally easier to do something than to do it elegantly, and hence that it is easier to attack something on the grounds that it is not elegant than on the grounds that it is not a definition—easier to attack what is more difficult to do. This again suggests that the tests are ordered in such a way that a definition is less likely to pass each in ascending order. Once Aristotle has set out the five parts of the inquiry concerning definition, it turns out that this means that constructing a definition that states the essence, and states the essence clearly, is most difficult, since these are the last of the parts of the inquiry.

The five parts are: (1) check whether the account as well as the name is said of the object to be defined (139a25–26).¹³ Aristotle explains that, for example, the definition of a person should be true of every person. This is just to say that a definition must be such that it is true of every item of which the (synonymous) name is true. The discussion of accidents in Books 2 and 3 forms a part of this first part. (2) When the proposed definition includes (as it should) a genus, check whether the object to be defined has not been placed in its genus or in the appropriate genus (139a27–28). (One might wonder whether “its genus” and “the appropriate genus” are not the same; at 139b2 Aristotle makes clear that they are by glossing the two expressions as “the appropriate genus”). If the object has not been placed in the appropriate genus, the

¹³ See also *Categories* 1a6–12.

definition is defeated immediately, whatever the differentiae, because the genus most of all the parts of a definition signifies the substance (οὐσία) of the object; the differentia(e) are added only once the object has been located in a genus. The discussion of genera in Book 4 forms a part of this part. (3) Check whether the proposed definition is proper to the object in question (139a31). If the definition is not true of all and only those objects, then it is not proper, and is immediately defeated. Like the first part, this part checks the extension of the definition; the first part checks whether it is too narrow; the third part checks whether it is too broad. The discussion of properties in Book 5 forms a part of this part. (4) Check whether the definition does not define and does not state the essence of the object to be defined (139a33–34). (5) Check whether the definition is elegant (139a34–35).

It is the fourth part, the inquiry into whether the definition defines and states the essence of the object to be defined, that is of primary interest to us in understanding why Aristotle supposes that a definition stated in terms of genus and differentia(e) will be a definition that states the essence. I propose, then, to focus on this fourth part.¹⁴ It is of particular interest because it makes clear that Aristotle takes it to be a necessary condition for a definition to be a definition at all that it should state the essence of the object to be defined. Since, as we have seen, to state the essence is necessarily to state the formal cause, Aristotle implicitly stipulates here that to be a definition at all an account must be causal in this sense.¹⁵ If, then, we can assume that in the *Topics* as well as the *Analytics* and the *Metaphysics*, the essence necessarily includes the formal cause (and I have tried to argue in Section II above that there is no reason not to make that assumption),

¹⁴ Notice that not defining and not stating the essence are the same failure; not stating the essence is not just one way in which one might fail to define. Aristotle implies that not stating the essence is the same as not defining at all when he says at 139b6–7 that what remains to be discussed is how one should conduct the inquiry if a definition is not a definition or is not an elegant definition. He has been listing the other parts of the *Topics* that discuss the *topoi* of the first three parts. This suggests that those three parts are not concerned with whether a definition is a definition at all, and that only the part concerned with whether the definition states the essence can tell us whether a definition is a definition at all. So not defining and not stating the essence are equivalent. Nonetheless, many of the *topoi* in the first three of the parts of the inquiry concerned with definition do point to mistakes in the statement of essence, so that the distinction between the fourth part and the first three is not absolute.

¹⁵ For the claim that stating the essence is stating the formal cause, see *Meta.* 1032b1–2, 1037a29, 1050b2.

then a successful definition in the terms of the *Topics* will be one that states the formal cause.

In the next section I show that the definitions which pass all the tests of the five parts will be causal in the sense that they will state what is prior to and more intelligible absolutely than the object to be defined. One implication of this is that definitions that are successful in the terms of the *Topics* will be appropriate as first principles in demonstrative sciences, and so we can see how definitions that begin as *endoxa* can be shown to have the certainty necessary to first principles. That is, such definitions will be causal, where that means prior to, and more intelligible absolutely than, the object of definition. To say that something is absolutely intelligible indicates that it cannot be analyzed further, and hence that no prior cause can be attributed to it. And this is true even though such definitions will be based on or take their origins from *endoxa*. Aristotle says as much at *Topics* 1.2 101a36–b₄, in saying both 1) that precisely because first principles in any science are primitive one cannot arrive at them through the principles of that science, and must arrive at them through *endoxa*, and 2) that dialectic is the proper method for arriving at first principles. Moreover, at *Topics* 6.4 141a26–31 Aristotle suggests a strong parallel between well-formed definitions and the first principles of the sciences: both are “prior and more knowable” relative to what they explain (*definienda* or conclusions). So understanding how, in the *Topics*, Aristotle argues that stating the genus and differentiae correctly in a definition will guarantee that that definition states the essence of the object to be defined will explain two things. First, it will explain why Aristotle assumes in the *Analytics* and the *Metaphysics* that knowing the genus and differentia(e) of a definable item is tantamount to knowing its essence; second, it will explain why he assumes that ensuring the genus/differentia(e) structure in a definition is sufficient, supposing the division is conducted properly, to allow that definition to stand as a first principle in a demonstration.

i. How to tell whether a definition states the essence

A word about the passages on which I focus in what follows: it is clear that *Topics* 6.2–3 is concerned with elegance, i.e. concerned with the fifth part of the inquiry concerned with definitions, and that *Topics* 6.4 – 7.2 is concerned with whether a definition states the essence, the fourth part. The *topoi* within the discussion of whether a definition states the essence are organized, ordered from those most closely related to the

nature of definition to those less closely related.¹⁶ The *topoi* concerned with priority and intelligibility and the topics concerned with genus and differentia are, then, those *topoi* most closely related to the nature of definition—and so in the discussion that follows I concern myself primarily with *Topics* 6.4–6, the chapters in which Aristotle discusses these *topoi* most closely related to definition.

The *topoi* Aristotle sets out in 6.4–6, the *topoi* concerned most directly with whether a definition states the essence, divide into three kinds: those concerned with whether the terms of a definition are prior to and more knowable than the definiendum, those concerned with the genus, and those concerned with the differentiae. As we have seen, various *topoi* concerned with genera and differentiae are discussed earlier in the *Topics*. Clearly, then, the *topoi* concerned with genera and differentiae that are discussed in Book 6 as part of the fourth part of the inquiry concerned with definition must have some special bearing on stating the essence. In what follows, I address two foundational issues, before turning to an examination of some of the details of the *topoi* concerned with stating the essence. The first of these issues is how to understand the phrase “prior and more knowable than”; the second is how the *topoi* concerned with genus and differentiae are connected to the *topoi* concerned with what is prior and more knowable.

To begin with the first issue: just what does it mean to be prior and more knowable? Our understanding of this phrase comes not only from the *Topics*, but also from the *Analytics* and the *Metaphysics*. Aristotle assumes that a definition must be prior to and more knowable than (γνωριμώτερον καὶ προτέρον) the object of definition, and he believes that in order to ensure that they are prior and more knowable one must state the genus and the differentiae (141b25–28). Here is the context for that claim:

First of all, see if he has failed to make the definition through terms that are prior and more familiar. For a definition is rendered in order to come to know the term stated, and we come to know things by taking not any random terms, but such as are prior and more intelligible, as is done in demonstrations (for so it is with all teaching and learning); accordingly, it is clear that a man who does not define through terms

¹⁶ Eleonore Stump, *Boethius's De topicis differentiis*, 175–176. See also Walter de Pater, *Les Topiques d'Aristote et la Dialectique Platonicienne*, Thomas Studien 10 (Freiburg: Paulus Verlag, 1965), 206; Eugène Thionville, *De la Théorie des lieux communs dans les Topiques d'Aristote, et des principales modifications qu'elle a subi jusque a nos jours*, (Paris: Durand, 1855; reprint Osnabrück: Zeller, 1965), 63.

of this kind has not defined at all. Otherwise there will be more than one definition of the same thing ... The statement that a definition has not been made through more intelligible terms may be understood in two ways either supposing that its terms are without qualification less intelligible, or supposing that they are less intelligible to us ... Absolutely, then, it is better to try to come to know what is posterior through what is prior, inasmuch as such a way of procedure is more scientific. Of course, in dealing with persons who cannot recognize things through terms of that kind, it may perhaps be necessary to frame the account through terms that are more intelligible to them. One must, however, not fail to observe that those who define in this way cannot show the essence of what they define, unless it so happens that the same thing is more intelligible both to us and also without qualification, since a correct definition must define a thing through its genus and its differentiae, and these belong to the order of things which are without qualification more intelligible than, and prior to, the species. For destroy the genus and differentia, and the species too is destroyed, so that these are prior to the species. They are also more intelligible; for if the species is known, the genus and differentia must of necessity be known as well, whereas if the genus or the differentia is known it does not follow of necessity that the species is known as well; thus the species is less intelligible. (6.4 141a26–b34)

Aristotle allows that one might have reasons for phrasing an account in terms that are more knowable, not absolutely, but with reference to some interlocutor, but maintains that such an account is not strictly speaking a definition.¹⁷ This is because a definition is an account of the essence, and the same thing cannot have multiple essences, so the same thing cannot have multiple definitions—other accounts will not be accounts of the essence (141a34–b2). So although what is most knowable absolutely is not necessarily what is most knowable relative to some particular interlocutor, a definition properly speaking will include only what is most knowable absolutely of the definiendum. What is most knowable absolutely is then the essence of the object to be defined; and there is only one such essence. But what is most important about this passage for my purposes is the clear identification of terms that are absolutely or unqualifiedly more intelligible and prior to a definiendum with the genus and differentia(e) of that definiendum. That is, the reason Aristotle offers here for insisting that definitions be formulated by division and in terms of genus and differentia(e) is just that the genus and differentia(e) of a species, whether or not they are more intelligi-

¹⁷ See *de Anima* 1.1 403a29–b4 for the view that, for example, the dialectician and the physicist will define the same thing differently.

ble to some individual person, are certainly more intelligible absolutely. That they are prior and more intelligible is demonstrated by an ontological point, not an epistemological point; if genus and differentiae are destroyed, the species too is destroyed but, implicitly, if the species is destroyed the genus and differentia are not necessarily destroyed. So priority and intelligibility are matters of ontological independence.

Stating the essence in the *Topics* is then a question of stating the cause just because it requires stating what is prior to and more knowable than the definiendum, and what is prior to and more knowable than something is the cause of that thing. Before examining the *topoi* concerned with what is prior and more intelligible, it is useful to consider the link Aristotle establishes in both the logical works and the *Metaphysics* between what is prior and more intelligible (absolutely) and what is causal. This connection between what is prior and more knowable on the one hand and what is the (first) cause is drawn explicitly in the *Metaphysics*. At 982b1–5 Aristotle says, “[what is most truly knowledge] is the knowledge of that which is most knowable; and the first principles and the causes are most knowable; for by reason of these, and from these, all other things are known, but these are not known by means of the things subordinate to them.” What is most knowable is then, not just a cause, but a first cause, where first means, not analyzable in terms of something else.

The distinction Aristotle draws in the passage at *Topics* 6.4 141b3–14 (part of which I quoted above) between what is more knowable absolutely (*ἀπλῶς*) and what is more knowable to us, is also drawn in the *Posterior Analytics* at 1.2 71b33–72a5, where the contrast is between what is perceptible and particular (which is more knowable to us) and what is universal (which is more knowable by nature—*τῇ φύσει*). Aristotle again appeals to this distinction, without explaining it, at *Metaphysics* 7.3 1029b3–5, although he there characterizes the distinction as one between what is more and less intelligible by nature (*τῇ φύσει*). In this passage he suggests that sensible substances are more knowable to us, but that essence is more knowable by nature. If, then, we think that the distinction in the *Posterior Analytics* and that in the *Metaphysics* are the same distinction, what is more knowable absolutely or by nature is the essence of what is to be defined, and the first cause, i.e. a cause which is more universal and less close to perception.¹⁸

¹⁸ At *Physics* 1.1 184a24–25 Aristotle says, on the contrary, that it is a whole, meaning a universal, which is more knowable to perception. The passage is anomalous and

Immediately preceding the passage in the *Posterior Analytics*, Aristotle claims that the first principles of demonstration will be more knowable and prior (as well as true, primitive, and immediate) and causal with respect to the conclusions of demonstration. The requirement that principles should be more knowable and prior is thus directly linked to the requirement that they should be causal: “They must be causes and more knowable and prior; causes because we have scientific knowledge only when we know the cause, and prior, if causes ...” (*An. Po.* 1.2 71b29–31). So whatever is a cause is more knowable than and absolutely prior to what it causes, which is what we should expect if essences are what is more knowable and prior.¹⁹

I have been discussing what Aristotle means by “prior and more knowable than”, and why it is important. This is the first of the foundational issues I announced at the beginning of the section. The second of these issues is the connection between the *topoi* concerned with what is prior and more knowable, and the *topoi* concerned with the genus and differentiae. In other words, why are these three the *topoi* that collectively Aristotle believes will allow us to determine whether a definition does in fact state the essence? My contention is that it is the *topoi* concerned with what is prior and more intelligible that are of primary interest, and that the *topoi* concerned with genus and differentiae are included insofar as they support the *topoi* concerned with what is prior and more intelligible.

We have seen that Aristotle requires that definitions should be constituted by a genus and one or more differentiae. The first set of *topoi* intended to ensure that the definition states the essence, which instructs us to see whether the definition is not expressed in terms that are prior and more knowable, directly links the requirement that the terms should be prior and more knowable with the requirement that the definition should be expressed as a genus and differentia(e): “... it is necessary for something to be defined well that it should be defined through the genus and the differentiae, and these are more knowable and prior in the absolute sense, than the form,” (141b25–28). This pas-

strange in that it identifies the individuals that fall under a universal with the parts or elements of a definition.

¹⁹ At *Topics* 8. 5 159b8–9 Aristotle says that, “whoever reasons well proves the conclusion from what is more acceptable (ἐνδοξότερον) and more knowable.” I take it that in this instance what is more knowable is what is more knowable absolutely, and hence that Aristotle is trying to establish here a link between what is more *endoxon* and what is more knowable because more of a cause.

sage is important, as I have said, because it makes clear that Aristotle's reason for requiring that definitions should be constituted by genus and differentiae is that this is necessary in order to ensure that definitions will be prior to and more knowable absolutely than the object to be defined (where the object is the form); and if prior to and more knowable, then causal with respect to that object. The adequacy of a definition to account for an essence is therefore dependent on the genus/differentiae structure. If an alleged definition were not constituted by genus and differentia(e) terms, then it could not be more than an account of its object. Only when we know that a definition is constituted by the genus and differentiae of the item that is the object of definition can we know that the definition states the essence. This is because the terms of a definition must be prior to and more knowable absolutely than the definiendum, and only the genus and differentia(e) are prior to and more knowable than the definiendum, because the destruction of the genus and differentia(e) would entail the destruction of the species.

The passage at 141b25–28 that I have quoted above suggests, then, that the *topoi* concerned with genera and differentiae are sub-sets of the *topoi* concerned with priority and knowability. If a definition must be expressed in terms of genus and differentiae in order to count as prior to and more knowable than the object to be defined, then the tests concerned with genus and differentiae are intended ultimately to ensure that the definition is prior to and more knowable than the definiendum, which is itself necessary if the definition is to be an account of the essence.

ii. *topoi concerned with what is prior and more intelligible*

Consider now some of the details of the *topoi* concerned with what is prior and more intelligible. Aristotle distinguishes two ways in which a definition might fail to be expressed in terms that are more intelligible. The first is by explaining (δηλοῦν) what is prior through what is posterior (142a17–18).²⁰ The problem is one of two. It might be (1) not that the object of definition is explained by what is posterior, but

²⁰ See also *Categories* 2b29–34 for the claim that species and genus make clear (δηλοῖ) the substance, that is, make clear what it is. In this same passage species is said to be more knowable than genus.

that the object of definition *is not* explained by what is *prior*.²¹ This has different manifestations: explaining one opposite through another, or a term through itself, or one co-ordinate member of a division through another. So, for example, one might explain a point by reference to a line (saying “the limit of a line”)—in this case the problem is that a point is prior to a line in the sense of being a principle (ἀρχή) of a line (141b5–9). And it might be (2) that the object of definition is explained by what is “lower” than it in a division (142b11). So, for example, one might explain the good by reference to virtue, when virtue is in fact lower than the good because virtue is a species of good (142b15–17).

Two points of interest emerge from this discussion (namely, the discussion of the first way in which a definition might fail to be expressed in more knowable terms). First, the language of “higher” and “lower” and the language of co-ordinate divisions suggests that Aristotle presumes that the definitions will be produced by and tested with the method of division. Priority in both of the cases outlined above (when the object of definition is not explained by what is prior, and when the object is explained by what is lower in a division) is priority in a division. That is, what is prior and more knowable is what is higher on the tree of division. The definitions that are being subjected to the tests of the *topoi* described here are definitions arrived at through the method of division. Second, when the terms fail to be prior it is because they do not include the genus of the definiendum. A genus is by definition prior to that of which it is the genus, so that if one states the genus one necessarily states something prior to the definiendum.

The second way in which a definition might fail to be expressed in terms that are more intelligible than the definiendum is that it might explain what is at rest and determinate (ὥρισμένου) by reference to what is indefinite and in motion (τοῦ ἀορίστου καὶ τοῦ ἐν κινήσει) (142a19–20). Aristotle claims that what is at rest and determinate is prior to what is in motion and indefinite; he does not elaborate on this second way, or offer us examples. The contrast is presumably between what is

²¹ Aristotle allows that this is sometimes possible; in some cases, then, it is legitimate to define according to what is neither prior nor posterior. In particular, Aristotle has in mind the definition of relative terms: “One must, however, observe that it is perhaps not possible to define some things in any other way, e.g. the double without the half, and all terms that are essentially relative; for in all such cases to be them is the same as to be somehow related to something, so that it is impossible to know the one without the other, and accordingly in the account of the one the other too must be embraced,” (142a26–31).

perceptible and particular on the one hand, and essence on the other, since these are the contrasting terms in the distinction between what is more knowable absolutely and what is more knowable to us. The perceptible, which is individual, is less intelligible in absolute terms, precisely because it is “indefinite” (I take this to mean “variable” in this context) and in motion. That is, the perceptible is subject to change. The essence of something is, by contrast, at rest and determinate in the sense that it is invariable across the individuals that belong to a given species, and not, in itself, subject to change. This sense of the more intelligible, as contrasted with the more perceptible, suggests another link between what is more intelligible and prior and the universal (or the more universal). Recall that at *Posterior Analytics* 1.31 88a5–8, in a passage I discussed above in Chapter Four (on p. 162), Aristotle says that a universal is more valuable than perception or thought. Here at *Topics* 142a19–20 it is the more intelligible and prior that is contrasted with the perceptible. This is not by itself adequate evidence to identify what is more intelligible and prior with the universal, but together with other evidence it strongly indicates such an identification.

Is there an underlying theme connecting the two ways in which a definition might fail to be expressed in terms that are more intelligible? What unites an explanation of what is prior through what is posterior and an explanation of what is “at rest” through what is “in motion”? I have already pointed out the implied parallel between what is posterior and what is in motion. The parallel is based on the view that the universal is prior and the particular is posterior. So the connection between explaining what is prior through what is posterior and explaining what is at rest through what is in motion, is that in both cases one tries to explain what is more universal by what is less universal, and this cannot be done. The implication is that the genus and the differentiae, constituted as a species essence, are more universal than the individuals to which that essence belongs. Genus and differentiae are then the terms of definition because they are also more unchangeable, more at rest, in virtue of being more universal.

iii. *the genus*

I have argued that certain *topoi* concerned with genus and differentiae are included among the *topoi* concerned with stating the essence because they support the *topoi* concerned with what is prior and more intelligible. We find many of the *topoi* concerned with genera in the

fourth book of the *Topics*, which includes all the *topoi* concerned with genera as predicates. Aristotle has defined a genus at *Topics* 1.5 102a31–32 as “that which is predicated in the essence (ἐν τῷ τί ἔσται) of many things which differ with respect to form.”²² That definition helps to explain why we find certain *topoi* concerned with genera in the Book 6 as *topoi* concerned with stating the essence. If the genus is what is predicated in the essence, then to state the essence is to state the genus. More than that, to state the essence one must state what is prior to and more intelligible than the object of definition, and that, as we have seen, requires that we state the genus and differentiae. We can then easily explain the inclusion of *topoi* concerned with genera among the *topoi* concerned with stating the essence. And so, in 6.5 Aristotle introduces certain *topoi* concerned specifically with the genus insofar as the genus influences whether a definition states the essence. I shall consider two of these that are of particular interest to the question of stating the essence.²³

The first of these two *topoi* is: make sure that a definition includes some genus term. That is, definitions ought not to be phrased in a way that avoids stating the genus—e.g. “that which has three dimensions” or “that which understands how to count” in which “that which” (τὸ) is substituted illegitimately for a genus term. Without a genus term a definition fails utterly to define, since it is the genus that establishes what the definiendum is. This seems to be another way of saying that a genus is necessary to a statement of essence, so that a definition that

²² See also 4.6 128a15–16. The definition of genus is problematic insofar as it does not seem to distinguish the genus from the differentiae in a definition. Aristotle adds that anything that it is appropriate to offer in response to the question, “What is it?” is said to be predicated in the essence. And at 6.8 146b20–21, b30–32 he suggests that differentiae are also predicated in the essence, because without stating the differentiae one cannot say what something is. This claim suggests that the differentiae are also predicated in the essence, but we then have to ask how differentiae differ from genera. I will return to this point below in the discussion of *topoi* concerned with differentiae.

²³ The third *topos* introduced in this chapter is not clearly concerned with the genus rather than the differentia. At 142b30–36. Aristotle tells us to check whether, in a case where the definiendum is used in relation to many things, the definition fails to render it in relation to all of them. So, for example, grammar is knowledge not only of how to write but how to read as well. But were we to define grammar as “knowledge of how to write” would the mistake be in the genus rather than the differentia? If we take “knowledge” here to be the genus, it would seem that the definition fails because of the differentia, which in this case is too limited.

fails to mention a genus fails to state the essence, and hence fails one of the tests of a definition.

The second of the *topoi* concerned with genus is: make sure that a definition does not skip over (ὑπερβαίνω) the genus to a higher genus. Do not, for example, define justice as “the state that produces equality” rather than “the virtue that produces equality”. Such a definition states the genus of the genus of the definiendum, rather than the genus of the definiendum; in so doing it fails to say what it is to be (τὸ τί ἦν εἶναι) justice, and hence fails to define (Aristotle says, “the substance of each thing is with its genus”). This error is like (or is identical with) the error in which the object to be defined is not placed in the nearest genus (143a15–20), which is permissible only if one adds all the differentiae which distinguish the nearest genus from the other genera subsumed under this higher genus (e.g. all the differentiae which distinguish virtues from other states). This *topos* is directly connected with the *topoi* concerned with what is prior and more knowable, in that the appropriate genus will be prior to and more knowable than the object to be defined—where, as we have seen, “prior” means prior in a division. We will know that we ought to stop at a particular genus when it can explain why the species is what it is, just as we know that we should stop at “triangle” and not at “isosceles triangle” in determining why the figure has angles equal to two right angles (see *Posterior Analytics* 1.24 85b5–7).

This *topos* again makes clear that Aristotle is working with the method of division in mind; this is clearly the implication of his claim that one must be careful not to skip over lower, and hence nearer, genera. The language of τὸ τί ἦν εἶναι and οὐσία also reminds us that Aristotle is working here with a vocabulary for the discussion of essence and definition just like that of the *Posterior Analytics* and the *Metaphysics*.

The *topoi* concerned with the genus demonstrate the privileged status of the genus in a definition in the *Topics*. Aristotle emphasizes the importance in a definition of finding the appropriate genus and placing the object in its genus before one searches for differentiae, by saying that the genus signifies what the object to be defined is (τί ἐστὶ) (6.5 142b27–29). This is consistent with his remark at 4.6 128a23–25 that, with respect to setting down what something is, it is more appropriate to state the genus than the differentia. On this view the differentia signifies a qualification (ποιότητα) of the genus. Since the qualifications of something are less rather than more knowable (absolutely) than the thing itself, Aristotle insists that in a definition the genus must be set

down first. This is not to say that we must arrive at the genus before the differentia, but that in the formulation of the definition the genus must appear first.

iv. *topoi concerned with differentiae*

Like the *topoi* concerned with the genus that are included among the *topoi* concerned with stating the essence, the *topoi* that treat of differentiae included in *Topics* 6 are intended to support the *topoi* concerned with what is prior and more intelligible, and they do so because of the peculiar relationship that obtains between differentiae and genera. Differentiae are not defined in *Topics* 1.5; they are not included in the list of elements (definition, genus, property, accident), nor do they correspond to any of the elements. They are, however, said to be “genus-like” (γενεκήν) at 101b18, where Aristotle adds that they should be treated as the same as the genus, which they qualify—a differentia signifies ποτόν τι (6.6 144a19; 4.2 122b16–17). He also says that one should be sure to distinguish all the differentiae of an object, including quantity, quality, and cause (ὑπο τίνοος); otherwise one will fail to state the essence (τὸ τί ἦν εἶναι) (6.8 146b20–21; b30–32).²⁴ “All” the differentiae will be all the ultimate differentiae in different lines of division, since there is no need to state the differentiae higher up in the same line of division, unless one has failed to place the object in its appropriate genus. This suggests that one might say what the object is (by placing it in the appropriate genus) without yet stating its essence, which requires the addition of the differentia(e). So stating the essence of an object of definition is something more than saying what it is, which is simply a matter of stating the genus. This passage is interesting for two further reasons. First, it suggests that Aristotle appreciates in the *Topics*, as in other treatises, the importance of the completeness of a definition, where that completeness will be a question of setting out all the initial differentiae before one begins to divide successively. Second, the passage states the importance of saying why something is, without of course specifying whether that why is a formal cause or some other kind of cause—

²⁴ This might suggest that differentiae may be in categories other than quality. And that is not inconsistent with the claim that differentiae are always qualifications, since in making that claim Aristotle was speaking of the relation between differentiae and genera. That is, to say that differentiae qualify genera is not to say that differentiae are necessarily qualities.

but at any rate it makes clear that in the *Topics*, as elsewhere, Aristotle understands a definition to be a causal (in some sense) account of what something is.

The claims that the differentiae are “genus-like” and that they are qualifications of the genus, together with Aristotle’s reluctance in the *Topics* to treat differentiae as one of the elements, reflect two features of differentiae. The first is that it is difficult to place them in a category—if they are in the category of quality, then they cannot be part of the essence because they will be accidents, and yet they do not look like substances (even when secondary substances are acknowledged as substances) because they are not separate or independent from that which underlies them. The second feature of differentiae is their unity in the definition with the genus that they divide. If Aristotle in the *Topics* is inclined to treat differentiae as qualifications of the genus, it is presumably because he is already anticipating the problems of unity that he confronts in the *Metaphysics*. That is, by making the differentia a qualification of the genus, Aristotle avoids the difficulties about the unity of essence that present themselves if one allows that two distinct entities constitute together a definable essence.²⁵ I will say something more about this below.

At the beginning of 6.6 Aristotle specifies five ways in which one might fail to define something which are concerned with the differentiae in a definition.

1. If one does not set out the differentiae of the object in question (but the differentiae of some other object).
2. If one offers as differentiae things incapable of being differentiae (e.g. substances).
3. If the alleged differentia has no co-ordinate in a division.
4. If the differentia and its co-ordinates are not in fact true of the genus.
5. If the differentia is not a specific difference—i.e. if, when added to the genus, it fails to make a species.

²⁵ The examples Aristotle offers of differentiae can be disconcerting, particularly in the definition of person as “featherless biped animal”. Because differentiae are supposed to qualify genera in such a way that they actualize them (and so play the role of form-analogue to the matter-analogue of the genus), we would like differentiae to have a certain dignity that “featherless” and “biped” might seem to lack. But we should note that there is some evidence in the treatise *Progression of Animals* that Aristotle did not take biped to be a trivial attribute relative to people (5 706b2–16); see Cynthia Freeland, “Accidental Causes and Real Explanations”.

Topos (2) reflects Aristotle's view that a differentia must be a qualification of the genus, and that no qualification can be a substance. This is in contrast with the genus, which Aristotle does here (as in the *Categories*) treat as a substance because it is what the object to be defined is.²⁶ If the alleged differentia in an attempted definition cannot be a differentia, then the definition fails to state the essence, since stating the essence involves stating the differentiae. *Topos* (2) is connected with *topos* (3), because a differentia must have co-ordinates in a division in order to count as a differentia. If there are no co-ordinates, then the genus in question is not divided into species, but is itself a species. The point is that without a coordinate division there is in fact no division at all, and the differentia distinguishes no kind more determinate than the alleged genus.

These *topoi* again make clear that Aristotle takes division to be the method one should use in constructing definitions. This helps to explain what he intends by *topos* (4), which requires that the differentia and its coordinates should be true of the genus. Aristotle's concern here is not so much the obvious (if they are not true of the genus, then the definition cannot be accurate). It is rather that if the differentiae are not true of the genus this would be because they were chosen from the division of some other genus. This is a strong reason to have the entire division before one in drawing up a definition: with a complete division one will know that the differentiae do indeed belong to the genus one has already established as part of the definition.²⁷ *Topos* (4),

²⁶ At *Categories* 5 3a21–28 Aristotle says: "This is not, however, peculiar to substance, since the differentia also is not in a subject. For footed and two-footed are said of man as subject but are not in a subject; neither two-footed nor footed is in man. Moreover, the definition of the differentia is predicated of that of which the differentia is said. For example, if footed is said of man the definition of footed will also be predicated of man; for man is footed." The claim here is that differentiae are like genera in that they are said-of (rather than present-in) the subject to which they are attributed. There is a problem with this. If differentiae are said-of the species which they distinguish—if, for example, in the sentence People are two-footed, "two-footed" is said of "people"—then the definition as well as the name should be predicated; but this cannot be done. And Aristotle's attempt to insist that it can be done, by recasting the sentence as, e.g., Two-footedness is predicated of people, does not help the matter, since any predication might be recast in the same way, with the result that all predicates would be said-of. For a more detailed discussion of the problem see Ferejohn, *The Origins of Aristotelian Science*, 94–99; T.H. Irwin, *Aristotle's First Principles*, 64–66; R. Dancy, "On Some of Aristotle's First Thoughts about Substance," *Philosophical Review* 84 (1975): 338–373; J.A. Ackrill, *Aristotle's Categories and De Interpretatione*, 85–87.

²⁷ This point is also made in *An. Po.* 2.13, when Aristotle discusses the third of the three aims in establishing a definition through divisions ("you must take what is

together with *topoi* (1) and (5), is intended to ensure that the definition will include differentiae that belong to the genus in question and to the species in question.

Topos (5) is of particular interest because, I believe, it alludes to the distinction between attributes that entail the genus but do not divide its form and attributes that are differentiae precisely because they divide the form of the genus—which is just to say that when differentiae that divide the form of a genus are added to the genus they make a species. But it does not tell us how to distinguish attributes that do divide the form of a genus from attributes that do not. Rather, it seems to treat the question, whether a particular differentia together with a given genus makes a species or fails to make a species, as a matter for empirical determination. That is, Aristotle does not provide the independent means of determining which differentiae do and which do not divide the form of the genus, or at least does not provide a rule for making the distinction. Perhaps he thinks it is obvious that male and female animals of a species are not different kinds of animal, because they have the same function, and that the same is true of other entities characterized by a genus and an attribute that divides the matter of the genus but not the form. At any rate, rather than providing us with a way of distinguishing differentiae that divide the form of a genus from differentiae that do not, either in the *Metaphysics* or here in the *Topics*, Aristotle seems to assume that we can pick out natural kinds (species) without philosophical help, and that we can use that ability to discern which attributes divide a genus into species, and hence which differentiae need to be included ultimately in the definition of that species.

predicated in what the thing is, you must order these items as first or second; *and you must ensure that these are all there are*,” (97a23–26) [italics mine]: “That these are all the terms there are is clear from the following consideration. At the first term in the division you assume that every animal is either this or that, and that in fact this holds of it; next you take the difference of this whole; and you assume that there is no further difference of the ultimate whole—or rather, that what you get immediately after the ultimate difference no longer differs in form from the complex. For it is plain that nothing extra has been posited (all the terms you have taken are in what the thing is) and also that nothing is missing. (If anything were missing, it would have to be either a kind or a difference: now the first term, and also this term taken together with the differences, constitute the kind; and the differences are all grasped—there is no later one left; for then the ultimate term would differ in form, whereas it has been said not to differ,” (97a35–b6). If nothing is missing, then the division is complete. And with a complete division, we can know that the differentiae in the definition do indeed belong to the genus.

So the *topoi* concerned with stating the essence make clear that Aristotle in the *Topics* believes that definitions that state the essence will be formulated by the method of division. They reveal, moreover, his view that if the terms of the definition state what is prior and more intelligible than the object of definition, then they will state the essence. Since it turns out that what is prior to and more intelligible than the object of definition (a species form) is the genus qualified by certain differentiae, a definition that states correctly the genus and differentiae of the species will state the essence of that species, and hence will satisfy one of the tests for a definition.

V. *How the Topics answers the questions*

We began with the question, “Why does Aristotle believe that to state the genus and differentiae of a species in the definition is to state the essence of that species?” Another way to put that question is to ask: “Why is the genus/differentia structure of definition supposed to guarantee that definitions will be causal in such a way as to make clear the essence?” Having considered some of the *topoi* concerned with stating the essence, we are now equipped to answer that question.

In the *Topics* Aristotle seems to understand the essence as “what something is”, and to believe that more than anything else the genus of a species will tell us what that species is. So stating the genus, and adding the differentiae to make precise the qualification of the genus, will state the essence. If we ask why he supposes that the genus states what something is, the answer is that the genus is the one thing prior to and more knowable (absolutely) than the species. Priority and knowability are both functions of universals, and the genus as a universal relative to a species has a claim to both. As to why stating the genus is causal, the answer is again that what is prior to and more knowable than the object of definition will be the cause of that definition, and because it is the genus which is prior to and more knowable than the species, it is the genus that is the cause (formally) of the species.

Stating the formal cause of the definiendum is the only way of assuring that one has stated what it is to be an X. Any other formula may be sufficient to classification, but not to understanding what the object of definition is (and if not sufficient for that purpose, then not adequate to the task of acting as a first principle in demonstrative

science). Now, stating the formal cause just is a matter of stating the genus and differentia(e), because the genus and differentia(e) are more intelligible and prior absolutely with respect to the object of definition. So stating the genus and differentia(e) will ensure that the definition is well constructed. And Aristotle offers us an argument, as we have seen, at 141b27–34 for taking the genus and differentia(e) to be absolutely prior and intelligible with respect to the object of definition.

The importance then of what is prior and more intelligible in the construction of a definition explains why Aristotle depends on the method of division for the formulation of definitions, and why so many of the *topoi* concerned with stating the essence make clear that a division is necessary for stating the essence. Only by performing a division up to the point at which we arrive at the species which is the object of definition can we know with certainty what is prior to and more knowable than that species. Only by performing the division can we know with certainty what the genus is and what the differentiae, and hence how to state the essence of the species. The question this raises is just the question of how to conduct divisions so that one arrives at the correct genus and differentia(e). This is why Aristotle takes so seriously, as we saw in Chapter One, the task of setting out constraints on the process of division—because ultimately the correctness of definitions, and hence the principles of demonstrative science, depend on the conduct of division.

Because, then, genus and differentiae are prior to and more intelligible than the object to be defined, they are causal in the appropriate way relative to that object, and necessary for the definition. Moreover, because the combination of genus and differentiae also represents the formal cause of the species, and has the unity necessary to act as the formal cause, stating the essence by stating the genus and differentiae ensures the certainty of the immediate definition, and hence ensures the possibility of demonstrative science. So definitions must be formulated in terms of genus and differentiae not only in order to make sure that they are statements of essence, but also in order to make sure that they have the structure necessary to function as first principles in demonstrative science.

VI. *Two problems*

I shall now consider two objections to my proposals concerning the role of the *Topics* in answering certain questions about definition.

The first of these objections is that the *Topics* never mentions causes as such—αἷτια—and certainly does not explicitly distinguish the different kinds of cause, or isolate formal causes from other kinds of cause. In this respect (as in many others) the *Topics* resembles the *Categories* more than the *Metaphysics*. Can it be that the *Topics* nonetheless treats of formal causes in the discussion of the *topoi* concerned with stating the essence in a definition? My argument has focused on the similarities in terminology and philosophical principle between the *Topics* and the *Metaphysics*. In particular, it is clear that Aristotle in speaking of substance and essence intends in the *Topics* what he intends in the *Metaphysics*, even if the conception of substance and essence, and the nature of the relation between them, is more developed in the *Metaphysics*. As we saw above (Chapter Four, pp. 158–161) Aristotle is able to assert that the universal is “more causal” than the items which fall under it because he has in mind the procedure of division (*An. Po.* 85b23–27).

Moreover, the insistence in the *Topics*, the *Analytics* and the *Metaphysics* that there can only be one definition, properly speaking, of any given object, rests on the argument that should there be more than one definition there would be more than one essence, and that this is impossible because the essence of a thing is what it is to be that thing, and the same thing cannot be essentially more than one. The use of this argument suggests that Aristotle is not just employing the same terms to speak of essence as the object of definition, but that he has in all three treatises a uniform conception of essence as that object. Given these considerations, the absence of explicit mention of causes, and in particular of essences as formal causes and of definitions as causal statements, is not so much an indication of a different understanding of essence and definition in the *Topics* and the *Metaphysics*. It is rather an indication that Aristotle had not yet developed a theory of causation as a foundation for the claims about essence and definition as a statement of essence.

The second objection is both more worrying and more interesting. It centers on the observation that the relation between the genus and the differentiae in a definition are quite different in the *Topics* and the *Metaphysics*.²⁸ In the *Topics*, as we have seen, Aristotle describes

²⁸ For a very useful discussion of the status of differentiae with respect to the cate-

the relation as one of qualification; the differentia qualifies the genus. This does not of course mean that every differentia is in the category of quality (Aristotle explicitly allows otherwise). Although the question is difficult, Aristotle seems to want to place the differentia(e) in the same category as the genus, i.e. in the category of substance. In the *Metaphysics*, as we saw in Chapter Four, the relation between differentia and genus is not one of qualification but of actualization; the differentia actualizes the genus. Most significantly, in the *Topics* Aristotle claims that the genus is more substance than the differentia, whereas in the *Metaphysics*, on the contrary, he claims that the differentia is more substance than the genus. In this respect, certainly, the treatises seem to be not merely different, but in conflict. On the other hand, the understanding of the genus as prior to the species in the *Topics* and the *Metaphysics* is not, I think, significantly different. In the *Topics* that priority is clearly ontological: the species is destroyed if the genus (and differentiae) are destroyed, so the genus is prior to the species and more intelligible absolutely. In the *Metaphysics*, the priority of the genus to the species has to do with the priority of form over other causes, and this again is ontological priority.²⁹

This conflict is not one that we can resolve—that is, I think it is a genuine change in doctrine—but it does not vitiate the theory of definition. Whether the differentia is said to be qualifying or actualizing the genus, the philosophical motivation in both cases for the claim is to ensure the unity of definition.³⁰ In the *Topics*, Aristotle evidently believes that unity is best guaranteed by making differentia genus-like, but in saying that they qualify the genus he at the same time undermines the possibility of understanding genus and differentia as ontologically similar. The relation of an attribute to that which it qualifies cannot, in

gories, see Donald Morrison, “Le statut catégoriel des différences dans l’Organon,” *Revue philosophique*, no. 2 (1993): 147–178.

²⁹ Again, this priority of genus over species obtains although the genus is posterior to the individual, since in the *Metaphysics* Aristotle suggests that in the generation of the individual it is not the species form that is prior to the individual.

³⁰ Morrison claims that there are two philosophical motivations for “l’interprétation homocatégorielle”, i.e. for the view that a differentia must be logically homogeneous with the essence that it constitutes in part: the first motivation is precisely that the differentia contributes to constituting the species; the second is that the natural and special unity of the parts of an essence requires and implies the logical homogeneity of the parts of the essence with the whole, (Morrison, 173–174). Morrison argues against the view that either of these is sufficient evidence for the claim that differentiae must be in the same category as the essence to which they contribute.

the terms of the *Metaphysics*, be one of unity. The discussion of the unity of definition in *Metaphysics* 7.4–5, and the resolution of the difficulties raised there by the claim that the differentia actualizes the genus in a definition, make clear that Aristotle came to believe that differentiae cannot qualify genera. For if they were to do so, then no definition, no statement of essence, would have the unity that the essence itself must have. And since a definition mirrors in structure the essence of what it defines, if no definition has unity, then no essence has unity; and if no essence has unity then there are no essences. So the switch from conceiving of the differentia as qualifying the genus to conceiving of it as actualizing the genus is motivated not by a new insistence on the unity of definition (that insistence was present even in the *Topics*), but rather by a new understanding of the requirements of unity.

This new understanding, in the *Metaphysics*, is surely brought about by reflections on the genus in a definition. First of all, if the genus is most of all substance, as Aristotle claims in the *Topics*, then Aristotle's ontology threatens to look like Plato's. That is, if genus is most of all substance, then genera must be separable, and if they are separable then species essence and genus are distinct ontological entities. Second, once Aristotle in the *Metaphysics* recognizes the need to introduce matter somehow into the definition and the essence of necessarily material objects, then genus as the less determinate, and underlying element, must play the role of matter. But matter must be potential rather than actual, and it becomes important that the differentia(e) should actualize the genus; but no qualification of something can actualize that thing. So differentiae cannot qualify genera, and must actualize genera.

My claim, then, is that the conflict between the *Topics* and the *Metaphysics* is genuine, not apparent, and that it represents a change of mind on Aristotle's part. It must be explained by a set of worries about the philosophical implications of the claim that differentiae qualify genera—in particular the worry that the relation of qualification could not guarantee the unity of essence or definition. One consequence of failing to guarantee unity is a Platonic ontology in which the parts of essence are both substances, and hence in which essence itself lacks unity.

CONCLUSION

The questions I began with may have seemed to demand dramatic resolutions. I said in the Introduction that I thought Aristotle's theory of definition could tell us what he thought an essence was, and in Chapter One that the theory would reveal why Aristotle supposed that immediate definitions had the certainty necessary to serve as the foundation of demonstrative syllogisms. The theory as I have reconstructed it does, I believe, answer those questions, but the answers may appear surprisingly quiet. An essence is a genus and a set of differentiae that divide the form of that genus; and the certainty of the formula of that essence, structured as an immediate definition, derives from the unity of the parts of that essence.

The answers to these questions are a function of the problem as Aristotle sees it. The problem is not, how do we distinguish cougars from tea-cups, or even cougars from pumas? Aristotle seems to suppose (rightly or wrongly) that we in fact have no trouble with those distinctions, or at any rate, no trouble that is philosophically interesting. The problem for him is rather, given that we can distinguish cougars from tea-cups, how can we use that ability to help us discover the essence of cougars and of pumas? One indication that Aristotle sees the importance of definition in this way is his use of definition in the argument of Books 7 and 8 of the *Metaphysics*, where his concerns are certainly not to distinguish one kind from another, but rather to ask what sort of thing might have an essence, and what that essence would be. Another indication is his insistence, shared with Plato, that definition must be natural or non-arbitrary, because the point of a definition is to capture what something is, and not just to allow us to classify individuals.

Aristotle certainly believed that it was possible to formulate "definitions" (in some sense) of many different kinds of things, and believed that those formulations would be useful to particular inquiries in certain circumstances. But his theory of definition as I have elaborated it clearly identifies immediate definition as definition proper, and the most important of formulae for two reasons. First, because the object of immediate definition, the essence of a simple item, has ontological pri-

ority over other sorts of objects. Second, because the unity of the parts of immediate definition mirrors the unity of the parts of essence, and that unity bestows unqualified necessity and hence certainty on immediate definitions.

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