ARISTOTLE
METAPHYSICS

BOOKS Γ, Δ, AND E

Translated with Notes

by

CHRISTOPHER KIRWAN

SECOND EDITION

PREFACE

THE text translated is that of W. Jaeger in the Oxford Classical Texts Series (1957). Footnotes in the translation mark the few places where I have diverged from it. Matter enclosed in square brackets in the translation is either specification of Aristotle's references, e.g. '[1011ª20]', or alternative translations, e.g. 'origin [principle]', or words not represented in the Greek, e.g. 'original [step]' where the Greek has 'origin'. The marginal lineations in the translation are placed in such a way that, for instance, the English in the line marked 1003ª35 translates matter from lines 34 and 35 in the Greek text. Thus the lineations err, when at all, on the side of being early. Chapter divisions are traditional (though not due to Aristotle himself); punctuation, parentheses, and paragraphing are my own.

Among several useful translations of the *Metaphysics* into English Sir David Ross's still stands out as the most accurate and perceptive. Since there would have been little point in attempting a second time what he has done already, I have aimed at a more literal rendering, for which there is a greater need now that many students of philosophy come to Aristotle without Greek. In pursuit of this aim I have tried to avoid using the same English word to translate two Greek words; so, for example, the common word *'phanai'* is given as 'assert', in order to reserve 'say' (among other renderings) for the equally common *'legein'*.

I gladly acknowledge my debt to many scholars and colleagues, and first to Sir David Ross, not only for the model which his translation provided but also for the help I have received from the enviably knowledgeable and sensible commentary in his edition of the *Metaphysics*. I have rarely consulted other commentaries, except Alexander. Secondly, I thank Professor J. L. Ackrill, editor of this series, whose acute and thorough criticism of my translation and notes has

improved them at many places and in many ways. I owe a great debt to his assistance and encouragement. Thirdly, I am glad to record my thanks to many others who have read drafts or helped me in correspondence: to R. J. Hawkins who checked the proofs and made a number of useful suggestions; to J. Barnes who commented on drafts of Γ 3–4 and E; to M. Scholar who allowed me to read his detailed essay on Γ 4–5; to W. Charlton whose version of, and notes on, *Physics* II 3 I was able to see before their publication; to J. A. Baker and A. J. P. Kenny who read and criticized the translations of Γ and Δ respectively; and to Miss W. F. Hicken and Professor P. T. Geach. Last, I owe thanks to my College and the University of Michigan, the one for giving me the sabbatical leave during which half this book was written, the other for affording me most congenial surroundings for working on it during part of that leave.

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NOTE ON SECOND EDITION

Some corrections were already made in the 1980 reprint; this second edition introduces about a dozen more. Further Comments are added which take account of work published since 1971. The Bibliography is enlarged and updated. An Index Locorum is added. The Subject Index is expanded. I have not tried to revise the Notes, beyond a few minor changes (I would alter many things, if I were now starting afresh).
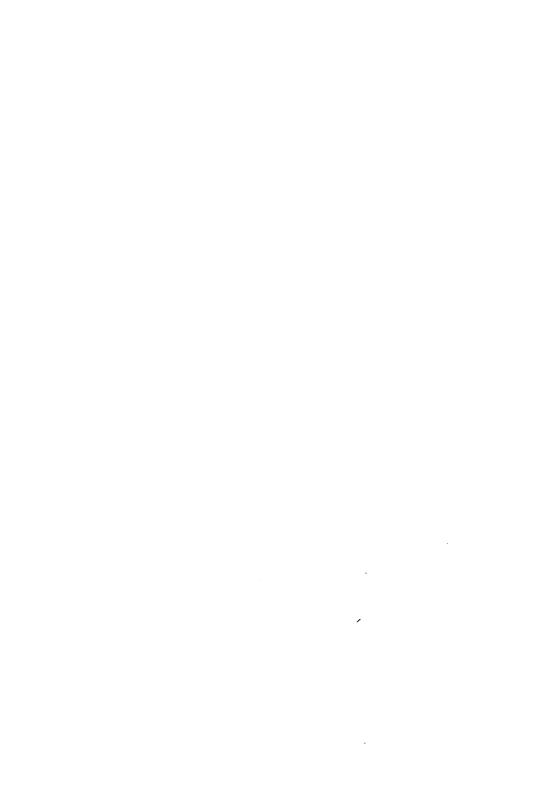
Marginal page references to the Further Comments have been added at a score or so of places in the Notes.

I wish to thank Professor J. L. Ackrill, Professor M. Frede, and Dr R. L. Judson for their kindness in reviewing the Further Comments, which improved them.

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METAPHYSICS BOOK GAMMA

CHAPTER 1

1003ᵃ21. There is a discipline which studies that which is *qua* thing-that-is and those things that hold good of this in its own right. This is not the same as any of what are called the special disciplines. For none of the others examines universally that which is *qua* thing-that-is, but all select some part of it and study what is coincidental concerning that; as for instance the mathematical disciplines. But since we are seeking origins, i.e. the most extreme causes, it is plain that these are necessarily a particular nature's in its own right. If therefore these origins were also sought by those seeking the elements of the things-that-are, the elements too are necessarily of that which is *qua* thing-that-is, not coincidentally. Hence we also have to find the first causes of that which is *qua* thing-that-is.

CHAPTER 2

1003ᵃ33. That which *is* may be so called in several ways, but with reference to one thing, i.e. one particular nature, not homonymously. Just as that which is healthy all has reference to health (either from its preserving, or producing, or being a sign of health, or because recipient of it); and that which is medical has reference to medical [art] (either it is called medical from possessing medical [art], or from being naturally suited to it, or from being an exercise of medical [art])— and we shall find other things called [what they are] in ways similar to these: just so that which *is* may also be so called in several ways, but all with reference to one origin. For some are called things that are because they are substances; some because they are affections of a substance; some because

they are a route to a substance, or destructions, or lacks, or
qualities, or productive, or generative of a substance or of
things called [what they are] with reference to substance;
10 or denials of one of these or of a substance (that is why we
assert that even what is not *is* a thing that is not).

1003ᵇ11. Therefore, just as everything that is healthy falls
to one discipline, this is equally so in the other cases too.
For it falls to one discipline to study not only things called
[what they are] by virtue of one thing, but also things called
[what they are] with reference to one nature; indeed in a
15 certain sense the latter too are called [what they are] by
virtue of one thing. Plainly, therefore, the things-that-are
also fall to be studied by one discipline *qua* things-that-are.

1003ᵇ16. In every case the fundamental concern of a
discipline is with its primary [object], i.e. that on which the
others depend and to which they owe their being called
[what they are]. So if this thing is substance, the philosopher
will need to have the principles and causes of substances.

1003ᵇ19. Every one genus falls to one perception and
20 discipline; as for instance all spoken sounds are studied by
grammar, which is one discipline. Hence it also falls to
generically one discipline to study all the forms of that
which is *qua* thing-that-is, and the forms of those forms.

1003ᵇ22. Suppose it true, then, that that which *is* and
that which is *one* are the same thing—i.e. one nature—in that
each follows from the other as origin and cause do, not as
25 being indicated by one formula (though it makes no differ-
ence even if we believe them like that—indeed it helps). For
one man and a man that is and a man are the same thing;
and nothing different is indicated by the reduplication in
wording of 'he is one man' and 'he is one man that is' (it is
plain that there is no distinction in [the processes of] coming
30 to be or destruction); and equally in the case of that which
is one. It follows obviously that the addition indicates the
same thing in these cases, and that which is one is nothing

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different apart from that which is. Again, each thing's sub-
stance is one non-coincidentally; equally, it is also just what
a certain kind of thing-that-is [is]. It follows that there
are as many forms of thing-that-is as of thing-that-is-one;
and what these are (I mean such things as *the same* and 35
similar and others of that kind) falls to be studied by generi-
cally the same discipline. Practically all contraries derive 1004ᵃ
from this origin; but we must take them as having been
studied in the 'Selection of Contraries'.

1004ᵃ2. And there are as many parts of philosophy as
there are substances; so that it is necessary that there be
among them a first and a next. For that which *is* divides 5
directly into genera; hence the disciplines too will follow
these. For the philosopher is like the mathematician, as he is
called; for that also has parts, a primary and a secondary
discipline and others successively within mathematics.

1004ᵃ9. Since opposites fall to be studied by one discipline,
and the *one* is opposed to *plurality* (the reason why the denial 10
and lack of a thing fall to be studied by one discipline is that
the one thing of which they are the denial or lack is studied in
both cases. For we either say baldly that that thing does not
hold good, or of a certain genus; in the latter case, then,
some differentia is added to the one, apart from what is there
in the denial.[1] For the denial is the thing's absence, but in 15
the case of the lack a certain nature comes in too as the
subject of which the lack is stated)—since the one is opposed
to plurality,[2] it follows that it also falls to the discipline men-
tioned to make intelligible the opposites of the things men-
tioned, both that which is *other* and *dissimilar* and *unequal*, and
everything else called [what it is] either by virtue of one of
these or by virtue of plurality and the one. Among these is 20
contrariety, since contrariety is a kind of difference, and differ-
ence is otherness. It follows that since the one is so called in
several ways, these things also will be called [what they are]

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[1] Keep the words obelized in the OCT.
[2] Keep the words bracketed in the OCT.

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in several ways. Nevertheless it falls to one discipline to make
all of them intelligible; for it will fall to another not if [they
are called what they are] in several ways but only if the
25 formulae are connected neither by virtue of one thing nor by
a reference to one thing.

1004ᵃ25. Since everything is connected to that which is
primary (as for instance, anything called one to the primary
one—and the same can be asserted to hold also of *the same*
and *other* and *contraries*), it follows that after dividing the
number of ways in which each thing may be called [what it
is], we have to display, with reference to what is primary in
each predication, in *what* way it is so called with reference
30 to that; for some things will be so called from possessing it,
some from producing it, others in other such ways.

1004ᵃ31. It is obvious, therefore, that it falls to one disci-
line to discuss these things and substance (that was one of
the perplexities we listed [*B* 1. 995ᵇ18–25]); and it falls to the
1004ᵇ philosopher to be capable of studying all of them. For if not
the philosopher, who will it be who investigates whether
Socrates and Socrates sitting down are the same thing, or
whether one is contrary to one, or what the contrary is and
in how many ways it is so called; and equally with the other
5 questions of that kind? Therefore, since these things are in
their own right affections of that which is one *qua* one and of
that which is *qua* thing-that-is, not *qua* numbers or lines or
fire, plainly it falls to that discipline to make intelligible both
what they are and the things coincidental to them; and those
who examine these questions are at fault not because they
are not philosophizing, but because substance is prior, and
10 of substance they have no comprehension. For just as there
are affections distinctive of number *qua* number—as for
instance oddness, evenness, commensurability, equality,
excess, deficiency—and these hold good of numbers both in
their own right and with reference to one another (and
equally there are others distinctive of things solid, changeless,
15 changeable, weightless, and possessing weight); so too certain

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things are distinctive of that which is *qua* thing-that-is, and these are the things about which it falls to the philosopher to investigate the truth.

1004ᵇ17. It is a sign of this that dialecticians and sophists assume the same guise as the philosopher. Sophistic is only imagined [to be] science. Everything is discussed by dialec- 20 ticians, and that which *is* is common to everything; and plainly *these* things are discussed by them because these things are proper to philosophy. Sophistic and dialectic do indeed range over the same genus as philosophy, but differ from it in the one case by the type of capacity, in the other by the life 25 chosen; dialectic probes where philosophy seeks understanding, and sophistic is imagined [to be science] but is not really.

1004ᵇ27. Again, every contrary on one side of the table is a lack, and all of them reduce to that which is and that which is not, and to one and plurality (as for instance keeping-the-same is on the side of the one, change on the side of plurality). Practically everyone agrees that the things-that-are, and substance, are composed out of contraries: at any rate, every- 30 one describes the origins of things as contraries, whether odd and even or hot and cold or limit and limitless or love and strife, and it is obvious that all the others also reduce to the one and plurality (we must take the reduction for 1005ª granted), and the origins proposed by others also find their place without exception under these genera. It is therefore obvious from this too that it falls to one discipline to study that which is *qua* thing-that-is. For all things either are or are made up of contraries, and contraries originate in the one and plurality. The latter fall to one discipline, whether or not 5 they are called what they are by virtue of one thing. Doubtless the truth is that they are not; nevertheless, even if that which is one is so called in several ways, the others will be so called with reference to the first; and equally so will contraries. (This is so, even if that which is, or that which is one, is not universal, i.e. the same in every case, or separable; 10 doubtless they are not, but some of them are related to one

thing, others form a succession.) This also explains why it does not fall to the geometer to study the question what is the *contrary*, or *complete*, or *one*, or *thing-that-is*, or *the same*, or *other*, except on the basis of a hypothesis.

1005ᵃ13. It is therefore plain: that it falls to one discipline to study that which is *qua* thing-that-is, and those things that hold good of it *qua* thing-that-is; and that the same discipline
15 undertakes the study not only of substances but of whatever holds good of them also, both the things mentioned and *prior* and *posterior* and *genus* and *form* and *whole* and *part* and the others of that kind.

CHAPTER 3

1005ᵃ19. We have to say whether it falls to one, or a different,
20 discipline to deal with the things which in mathematics are termed axioms, and with substance. It is indeed obvious that the investigation of these too falls to one discipline, and that the philosopher's; for they hold good of every thing-that-is and not of a certain genus, separate and distinct from the others. Everyone uses them, it is true; because they are of
25 that which is *qua* thing-that-is, and each genus is a thing-that-is. But everyone uses them just so far as is sufficient for him, that is, so far as the genus extends about which he is carrying out demonstrations. Since it is plain that they hold good of all things *qua* things-that-*are* (for that is what they have in common), it follows that their study too falls to him who makes intelligible that which is *qua* thing-that-is. This explains why none of those who conduct specialized
30 investigations endeavour to say anything about them, as to whether or not they are true. Geometers and arithmeticians do not; some students of nature do, but that is not surprising, since they alone have considered that they were investigating the whole of nature, i.e. that which is. But since there is someone still further above the student of nature (for nature
35 is one particular genus of thing-that-is), the investigation of

these things also must fall to him who studies what is universal, and primary substance. The study of nature is also a science, but not primary.   1005ᵇ

1005ᵇ2. The endeavours of some of those who discuss [their] truth, as to how [they] ought to be accepted, are due to lack of training in analytics. The student ought to come ready equipped with knowledge of these things, not seek it 5 while listening.

1005ᵇ5. Plainly, therefore, it falls to the philosopher, i.e. the student of what is characteristic of all substance, also to investigate the principles of trains of reasoning.

1005ᵇ8. It is appropriate for him who has the best understanding about each genus to be able to state the firmest principles of that actual subject, and hence, when his subject 10 is the things-that-are *qua* things-that-are, to state the firmest principles of everything: and this man is the philosopher. A principle about which it is impossible to be in error is firmest of all. For a principle of that kind is necessarily the most intelligible, since everyone makes mistakes on matters about which he does not have understanding; and is non-hypothetical, since what is necessarily part of the equipment 15 of one who apprehends any of the things-that-are is not a hypothesis, and what one necessarily understands who understands anything is necessarily part of the equipment he comes with. It is plain, then, that a principle of that kind is firmest of all.

1005ᵇ18. We have next to state what principle this is. *For the same thing to hold good and not to hold good simultaneously of the* 20 *same thing and in the same respect is impossible* (given any further specifications which might be added against the dialectical difficulties).

1005ᵇ22. This, then, is the firmest of all principles, for it fits the specification stated. For it is impossible for anyone to believe that the same thing is and is not, as some consider 25

Heraclitus said—for it is not necessary that the things one says one should also believe. But if it is not possible for contraries to hold good of the same thing simultaneously (given that the customary specifications are added to this proposition too), and the opinion contrary to an opinion is
30 that of the contradictory, then obviously it is impossible for the same person to believe simultaneously that the same thing is and is not; for anyone who made that error would be holding contrary opinions simultaneously. That is why all those who demonstrate go back to this opinion in the end: it is, in the nature of things, the principle of all the other axioms also.

CHAPTER 4

35 1005ᵇ35. There are those who, as we said, both themselves
1006ª assert that it is possible for the same thing to be and not to be, and [assert that it is possible] to believe so. Many even of writers on nature make use of this statement. But we have just accepted that it is impossible to be and not be simultaneously,
5 and we have shown by means of this that it is the firmest of all principles. Some, owing to lack of training, actually ask that it be demonstrated: for it is lack of training not to recognize of which things demonstration ought to be sought, and of which not. For in general it is impossible that there should be demonstration of everything, since it would go on to in-
10 finity so that not even so would it be demonstration. But if there are some things of which demonstration ought not to be sought, they could not say what they regard as a principle more fully of that kind.

1006ª11. But even this can be demonstrated to be im-possible, in the manner of a refutation, if only the disputant says something. If he says nothing, it is ridiculous to look for a statement in response to one who has a statement of nothing,
15 in so far as he has not; such a person, in so far as he is such, is similar to a vegetable. By 'demonstrating in the manner of

a refutation' I mean something different from demonstrating, because in demonstrating one might be thought to beg the original [question], but if someone else is cause of such a thing it must be refutation and not demonstration. In response to every case of that kind the original [step] is not to ask him to state something either to be or not to be (for that 20 might well be believed to beg what was originally at issue), but at least to signify something both to himself and to someone else; for that is necessary if he is to say anything. For if he does not, there would be no statement for such a person, either in response to himself or to anyone else. But if he does offer this, there will be demonstration, for there will already be something definite. But the cause is not he who demon- 25 strates but he who submits; for eliminating statement he submits to statement. Again, anyone who agrees to this has agreed that something is true independently of demonstration.

1006ᵃ28. First, then, it is plain that this at least is itself true, that the name signifies to be or not to be this particular 30 thing, so that it could not be that everything was so-and-so and not so-and-so.

1006ᵃ31. Again, if 'man' signifies one thing, let that be two-footed animal. What I mean by 'signifying one thing' is this: if that thing is a man, then if anything is a man, that thing will be to be a man. But it makes no difference even if someone were to assert that it signified more than one thing, provided that these were definite; for a different name could 1006ᵇ be assigned to each formula. (I mean, for instance, if someone were to assert that 'man' signified not one but several things, of one of which the formula was 'two-footed animal', but there was more than one other as well, but a definite number; for a distinct name could be assigned in respect of 5 each of the formulae.[1]) But if, instead of so assigning, he were to assert that it signified infinitely many things, it is obvious that there would be no statement. For not to signify one thing is to signify nothing, and if names do not signify,

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[1] Keep the words bracketed in the OCT.

discussion is eliminated with others; and, in truth, even with
10 oneself, since it is not possible even to conceive if one is not
conceiving one thing and, if it is possible, one name could be
assigned to that actual thing. Let the name, then, as was said
originally, signify something and signify one thing.

1006ᵇ13. Then it is not possible that 'to be a man' should
signify just what 'not to be a man' [signifies], if 'man' signi-
15 fies not only about one thing but also one thing (for we do not
count as signifying one thing this, viz. signifying about one
thing, since in that way 'artistic' and 'pale' and 'man' would
signify one thing, so that all will be one, because synonymous).
And it will not be to be and not to be the same thing unless
20 homonymously, as if others were to term not-man what we
term man. But what is found perplexing is not whether it is
possible that the same thing should simultaneously be and
not be a man in name, but in actual fact. But if 'man' and
'not-man' do not signify something different, it is plain that
[neither] does 'not to be a man' from 'to be a man', so that to
25 be a man will be to be a not-man; for they will be one thing.
(For 'to be one thing' signifies this: being like mantle and
cloak, if the formula is one.) But if they are one thing, 'to be
a man' and 'not-man' signify one thing. But it had been
shown that they signify something different.

1006ᵇ28. It is accordingly necessary, if it is true of anything
30 to say that it is a man, that it be a two-footed animal (for
that was what 'man' signified); and if that is necessary, it is
not possible that the same thing should not be, at that time,
a two-footed animal (for 'to be necessary' signifies this: to be
incapable of not being). Consequently it is not·possible that
it should be simultaneously true to say that the same thing
is a man and is not a man.

1007ᵃ 　1006ᵇ34. The same argument applies also in the case of
not being a man. For 'to be a man' and 'to be a not-man'
signify something different, if even being pale and being a
man are different. For the former is much more strongly

opposed, so that it signifies something different. But if [the
disputant] asserts that 'pale' signifies one and the same thing 5
too, we shall repeat just what was stated before also, that
everything, and not only opposites, will be one. If that is not
possible, what we have stated follows, if he will answer the
question asked. But if, asked the question baldly, he appends
the denials also, he is not answering the question asked. For 10
nothing prevents the same thing being both a man and pale
and a thousand other things; nevertheless, if one is asked
whether it is true to say that this thing is a man or not, the
answer ought to signify one thing, not append that it is also
pale and tall. For it is certainly impossible to go right through 15
the coincidentals of a thing, which are infinite; so let him go
through either all or none. So equally, even if the same thing
is a thousand times a man and not a man, one ought not to
append, to one's answer to the question whether it is a man,
that it is simultaneously not a man also; unless one is to
append all the other things too which coincide in it, the
things that it is or is not. But if one does that, there is no 20
discussion.

1007ᵃ20. Those who say this entirely eliminate substance
and what it is to be. For it is necessary for them to maintain
that all things are coincidences and that there is no such
thing as just what to be a man or to be an animal [is]. For if
anything is just what to be a man [is], that will not be to be a
not-man or not to be a man: yet those are its denials. For 25
what it signified was one thing, and that was something's
substance, and to signify a thing's substance is to signify
that, for it, to *be* is nothing else. But if, for it, just what to be a
man [is] should be either just what to be a not-man [is] or
just what not to be a man [is], it *will* be something else; so
that it is necessary for them to say that this kind of formula 30
applies to nothing, and that all things are coincidentally.
For that is what distinguishes substance and the coinciden-
tal: the pale coincides in a man because he is pale but not
just what pale [is].

1007ᵃ33. But if everything is said coincidentally, there will not be anything which things are initially about, if 'coincidental' always signifies a predication about a certain subject. Consequently it will be necessary to go on to infinity. But that is impossible, for not even more than two combine; for the coincidental is not coincidental in the coincidental, unless because both coincide in the same thing—I mean for instance that the pale may be artistic and the latter pale because both coincide in a man. But Socrates is not artistic in that way—that both coincide in some other thing. Accordingly, since some things are called coincidental in the latter way, some in the former, those so called in the latter, as the pale is in Socrates, cannot be an infinite upward series, e.g. some other thing coincidental in Socrates the pale; for not everything makes up some one thing. Nor indeed will there be any other thing coincidental in the pale, as for instance the artistic; for the latter no more coincides in the former than the former in the latter, and at the same time there is a distinction between things that coincide in this way and things that coincide as the artistic in Socrates. In none of the latter cases does the coincidental coincide in something coincidental, but it does in all the former cases; so that not everything will be said coincidentally. Consequently, there will be something signifying a substance even in such a case. And if that is so, it has been shown that it is impossible to predicate contradictories simultaneously.

1007ᵇ18. Again, if contradictories are all simultaneously true of the same thing, it is plain that everything will be one. For the same thing will be both a warship and a wall and a man, if it is possible either to affirm or to deny something of everything, as is necessary for those who state the thesis of Protagoras. For if a man is thought by someone not to be a warship, it is plain that he is not a warship; so that he also *is*, if the contradiction is really true. Indeed we also get the doctrine of Anaxagoras, that 'every article is mixed together'; so that nothing is truly one. These people seem, therefore, to

be stating something indefinite; and while they consider
that they are stating that which is, their statement is actually
concerning that which is not (for the indefinite is what *is*
potentially and *not* in complete reality). On the other hand
their statements, at least, must affirm or deny everything of 30
everything; for it would be absurd if the denial of *itself* held
good of each thing, but the denial of some other thing, which
does not hold good of it, did *not* hold good of it. I mean for
instance that if it is true to say of a man that he is not a man,
plainly he is also either a warship or not a warship. So if the
affirmation holds good of him, necessarily its denial does too.
But if the affirmation does not hold good, at least *its* denial 35
will hold good of him more readily than his own. So if even 1008ᵃ
the latter does hold good, that of warship will too; and if it
does, its affirmation will too.

1008ᵃ2. This is one consequence, then, for those who state
this thesis; another is that it is not necessary either to assert
or deny. For if it is true that he is a man and not a man, 5
plainly also he will be neither a man nor not a man; for the
two have two denials, and, if both make up the one former,
there must also be the one latter opposed to it.

1008ᵃ7. Again, either this is so in every case, i.e. a thing
is both pale and not pale, both a thing-that-is and not a
thing-that-is, and in a similar way for all other assertions and 10
denials; or it is so in some cases but not in others. If it is not
so in all cases, these would be agreed. But if it is so in all, then
in turn either anything asserted may also be denied and
anything denied also asserted; or the things asserted may
also be denied but not everything denied also asserted. But if 15
the latter, something would be securely *not* a thing-that-is, and
that opinion would be firm; and if not to be is something
firm and certain, the opposite assertion would be still more
certain. But if anything denied may equally be asserted too,
necessarily it is either true to state separately, for instance, that
a thing is pale and again that it is not pale, or not. If it is not 20
true to state separately, then not only does he not state these

things but nothing whatever is—and how can things-that-
are-not walk and talk? Also everything would be one, as we
said before [1007ᵇ20], and a man and a god and a warship
25 and their contradictories will be the same thing; for if it
applies equally to each thing, nothing will differ from any-
thing else, since, if it did differ, *that* would be true and dis-
tinctive. Equally, even if it is possible to have the truth in
stating things separately, the result we have stated follows;
and in addition it follows that everyone would have the truth
and everyone would be in error, and [the disputant] himself
30 is in error by his own admission.

1008ᵃ30. At the same time it is obvious that in response to
this person there is nothing for an investigation to deal with;
for he says nothing. For he says neither that it is so-and-so
nor that it is not so-and-so, but that it both is so-and-so and
is not so-and-so; and again he also *denies* both these, saying
that it is neither so-and-so nor not so-and-so. For if he did not,
something would already be definite.

35   1008ᵃ34. Again, if whenever an assertion is true its denial
is false and when the latter is true its affirmation is false,
there can be no such thing as simultaneously asserting and
1008ᵇ denying the same thing truly. However, they would doubt-
less assert that this is the question originally posed.

1008ᵇ2. Again, are we to say that he who believes that
things are in a certain state, or are not, is in error, while he
who believes both has the truth? For if he has the truth,
what can be meant by saying that the nature of things-that-
5 are is of that kind? If he does not have the truth, but has
more truth than the one who believes the former way, then
the things-that-are would already be in some state, and that
would be true and not simultaneously also not true. But if
everyone equally both is in error and states the truth, there
will be nothing for such a person to speak or say; for he
10 simultaneously says this and not this. And if a man believes

nothing, but considers it equally so and not so, how would his state be different from a vegetable's?

1008^b12. From which it is also quite obvious that nobody actually is in that condition, neither those who state this thesis nor anybody else. For why does anyone walk to Megara rather than stay where he is, when he considers that 15 he should walk there? Why does he not proceed one morning straight into a well or over a precipice, if there is one about: instead of evidently taking care to avoid doing so, as one who does not consider that falling in is equally a good thing and not a good thing? It is consequently plain that he believes that one thing is better, another not better. And if so, he must also believe that one thing is a man and another not a man, one thing sweet and another not sweet. For he neither seeks 20 nor believes everything indifferently when, considering that it is better to drink water and see a man, he thereupon seeks to do so; and yet he ought to, if the same thing were equally a man and not a man. But just as we said, there is nobody who does not evidently take care to avoid some 25 things and not others; so that it seems that everyone holds some beliefs baldly, if not about everything then about what is better and worse. And if this is not knowledge but opinion, one would have to be all the more anxious about the truth, as a sick man is more anxious about his health than one who is healthy. For indeed a man who holds an opinion is in an 30 unhealthy condition with regard to the truth, compared with one who has knowledge.

1008^b31. Again, however much everything is so-and-so and not so-and-so, at least the more and the less are present in the nature of things-that-are. For we would not assert that two and three are *equally* even, or that one who considered 35 that four things were five and one who considered that they were a thousand were *equally* in error. So if they are not equally, it is plain that one of them is less, so that he has more truth. So if what is more is nearer, there must be something 1009^a true which the more true view is nearer. And even if that is

not so, at least there is already something more firm and
more truthlike, and we should be rid of the unadulterated
5 thesis which would prevent us from having anything defi-
nite in our thinking.

CHAPTER 5

1009ᵃ6. From the same opinion also derives the thesis of
Protagoras, and it is necessary that both either are or are not
the case equally. For if everything that is thought or imagined
is true, it is necessary that everything should be simul-
10 taneously true and false; for many people have mutually
contrary beliefs, and regard those whose opinions are not
the same as their own as in error, so that it is necessary that
the same thing should both be and not be. And if the latter,
it is necessary that what is thought to be should all be true;
for those who are in error and those who have the truth hold
mutually opposite opinions, and so, if that is the state of
15 things-that-are, all will have the truth. It is plain, then, that
both theses derive from the same thinking.

1009ᵃ16. But the way to confront their proponents is not
always the same: some require to be convinced, others to be
defeated. If they have this belief as a result of perplexity
their mistake is easy to remedy, for the conflict is not with
20 their statement but their thinking. But if they state it for
the sake of stating it, the remedy is to refute the statement
which is in their speech and in their words.

1009ᵃ22. Those who find themselves in perplexity derive
this opinion from perceptible things. On the one hand, [they
derive the opinion] that contradictories and contraries hold
good simultaneously from seeing contraries coming to be
25 out of the same thing. If, therefore, it is not possible that
what is not should come to be, that actual thing has all along
been both equally. This is asserted by Anaxagoras ('every-
thing is mixed in everything'), and by Democritus, who says:

the void and the full are found equally in every part what-
ever, and yet the one of these is that which is, the other that
which is not. In response to those, then, whose belief derives 30
from these sources, we shall say that in one sense what they
say is correct, but in another sense they are mistaken. For
that which *is* may be so called in two ways, so that there is one
sense in which it is possible for something to come to be out of
what is not (though in another sense this is not possible), and
for the same thing to be simultaneously both a thing-that-is
and a thing-that-is-not (only not in the same respect)—for 35
it is possible for the same thing simultaneously to be contrary
things *potentially*, though not in complete reality. Again, we
shall require these people to believe that among the things-
that-are there is also another kind of substance of which
neither change nor destruction nor coming to be hold good
at all.

1009ᵃ38. So, too, from perceptible things some derive the 1009ᵇ
truth of what is imagined. For they consider that it is in-
appropriate to judge truth by large or small numbers, but
the same thing is thought sweet by some who taste it and
bitter by others; so that if everyone were ill or everyone were 5
out of his mind and only two or three people were healthy or
sane, the latter would be thought ill and out of their minds
and not the others. Again, [they say] that the same things are
imagined in contrary ways by many of the other animals and
by us, and even as perceived by each person they are not
always thought the same. Which kinds of these, therefore,
are true or false is unclear; for these ones are no more true 10
than those, but equally. That is why at least Democritus
asserts that either there is no truth or at least to us it is
unclear.

1009ᵇ12. In general it is because they believe that per-
ception is wisdom, and the former is modification, that they
assert that what is imagined in perception is of necessity
true. For it is for these reasons that both Empedocles and 15
Democritus and virtually everyone else have succumbed to

opinions of this kind; for Empedocles actually asserts that
a person's wisdom alters as he alters his state:

> Men's cunning grows with what is present to them.

And elsewhere he says:

20
> And as they modified, so did their thoughts
> Come always modified to mind.

And Parmenides pronounces in the same sense:

> For as each moment stand his limbs composed
> So is man's thought arrayed; for what has mind
> Is nothing but the nature of the limbs
25
> Of all of us: we think what we have more of.

It is also recorded as a dictum of Anaxagoras in response to
some friends that 'things will really be for them however
they believe'. People even assert that Homer evidently held
this opinion, because he made Hector, when he was un-
30 conscious from a blow, lie 'with other things in mind', as if
even those who are out of their minds have something in
mind, though not the same things. So it is plain that if both
states are states of wisdom, things will really *be* so-and-so and
not so-and-so simultaneously.

1009ᵇ33. And it is at this point that the most unfortunate
consequence arises; for if those who have observed the avail-
35 able truths most closely—and they are those who have
sought hardest for them and cared most about them—if they
hold opinions of this kind and make these pronouncements
about truth, will not those endeavouring to philosophize
legitimately lose heart? The quest for truth would be a wild-
goose chase.

1010ᵃ   1010ᵃ1. What caused these people to hold their opinion
was that, in searching for the truth about the things-that-are,
they believed that the things-that-are are merely percepti-
bles; and in these the nature of indefiniteness, i.e. of *being* in
the way we have described, is an important constituent. This
5 explains why their statements, though plausible, are not true

(an apter way to put it than Epicharmus used about Xeno-
phanes).

1010ᵃ7. Again, observing that all this [world of] nature is
in change, and that no truth is had about that which is in
[process of] alteration, it was not possible to have the truth at
least concerning that which is in [process of] every style and
manner of alteration. This belief blossomed into the most 10
extreme of all the opinions we have mentioned, that of those
who proclaimed themselves Heracliteans; such as Cratylus,
who in the end considered that he ought to say nothing, and
merely moved his finger. He also criticized Heraclitus for
saying that it is not possible to step into the same river twice:
for he himself considered that it is not possible even once. 15

1010ᵃ15. In response to this argument too *we* shall say that
while they do have some argument for considering that at the
time of its altering a thing in [process of] alteration *is not*, yet
that is after all disputable. For some of what is being dis-
carded is possessed by the thing discarding it, and some of
what is coming to be necessarily already is. And in general
if a thing is in [process of] destruction there will be *something* 20
that is, and if a thing is in [process of] coming to be there is
necessarily something out of which it is coming to be and by
the agency of which it is being generated, and this does not
go on to infinity. But leaving that aside, we may say this,
that it is not the same thing to alter in quantity and in
qualification; allowing, then, that a thing's quantity is not
constant, still we are acquainted with everything by its 25
form.

1010ᵃ25. Again, those who hold this belief could legiti-
mately be criticized for pronouncing equally true of the
whole universe what they observe only in a minority even of
perceptible things. For only the region of the perceptible
around us is permanently in [process of] destruction and
coming to be; and that is virtually no portion of the whole, 30
so that it would be juster to acquit that portion because of the
other than to condemn the other because of it.

1010ᵃ32. Again, it is plain that we shall repeat in response to these people what was said previously [1009ᵃ36–8]: for they must be shown, and they must be convinced, that there
35 is a certain nature which is changeless. And yet the consequence of maintaining simultaneously that things are and are not is really to assert that all are at rest, rather than changing; for there is nothing for things to alter into, for
1010ᵇ everything holds good of everything.

1010ᵇ1. As for truth, to show that not everything that is imagined is true: first, even if perception, at least of what is special, is not false, still imagination is not the same thing as perception. Next, one may legitimately be surprised that they
5 should find perplexing the question whether magnitudes and colours are such as they are imagined by those who are at a distance or those who are near, and by the healthy or the sick; or whether what is imagined by the weak or the strong is heavier; or whether what is imagined by the sleeping or the waking is true. For it is obvious that they do not really
10 consider it so: at any rate if someone in Libya believes himself one night in Athens, he does not set off for the Odeon. Again, as for the future, as Plato also says, the opinions of a doctor and an ignorant man are surely not equally authoritative, as for instance on the question whether someone is or is not going to be healthy.

15   1010ᵇ14. Again, in the case of our perceptions themselves the perception of what is alien and special, or of what is neighbouring and what is its own, are not equally authoritative, but in the case of colour it is sight, not taste, and in the case of flavour taste, not sight; and each of these never asserts about the same thing in the same time that it is simultaneously so-and-so and not so-and-so.

20   1010ᵇ19. Nor, even in another time, was there dispute about the affection, but only about that in which the affection coincides; I mean for instance that the same wine might be thought sweet at one time and not sweet at another, if there

is an alteration either in it or in the body; but the sweet such
as it is, when it is, has never yet altered, and one always has
the truth about it, and anything that is going to be sweet is 25
such of necessity. Yet this is eliminated by all these theses—
just as nothing has a substance, so too nothing is of necessity.
For it is not possible that what is necessary should be thus and
otherwise, so that if anything is of necessity it will not be
both thus and not thus.   30

1010ᵇ30. And in general, if in fact only the perceptible
exists, nothing would exist unless living things existed; for
there would be no perception. Now it is doubtless true that
neither perceptible things nor sense-impressions (which are
an affection of a perceiver) would exist; but that the sub-
jects which produce perception would not exist, even in the
absence of perception, is impossible. For perception is not *of* 35
itself, but there is some other thing too apart from perception,
which is necessarily prior to perception; for what changes
something is prior in nature to the thing changed, and this is 1011ᵃ
so no less even if they are called these things with reference to
one another.

CHAPTER 6

1011ᵃ3. Some, both among those who are convinced by all
this and among those who merely state these things, are
perplexed because they want to know who will judge who is 5
healthy, and in general on each subject [who will judge] who
will judge it correctly. Such perplexities are similar to the
perplexing question 'Are we now asleep or awake?' and they
all have the same force. For those who pose them ask for an
argument for everything; for they seek a principle, and they
seek to get it through demonstration—since it is obvious in 10
their actions that they are not actually convinced. Their
trouble is just as we have stated: for they seek an argument
for something for which there is no argument, for a principle

of demonstration is not a demonstration. These people might easily be convinced of this point, which is not a hard thing to
15 accept. But those who seek only to be defeated in the argument seek the impossible; for they ask that contraries be stated, forthwith stating contraries.

1011ᵃ17. If not everything is relative to something, i.e. some things are also themselves in their own right, not everything imagined can be true. For what is imagined is imagined *by* someone, so that anyone who says that every-
20 thing imagined is true makes every thing-that-is relative to something. Hence those who seek to be defeated in the argument and at the same time ask to subject themselves to argument have to be careful to say that it is not what is imagined that is but what is imagined *by* him who imagines it and at the time and in the style and manner that it is imagined. If they subject themselves to argument but not on
25 these terms, they will soon find themselves making contrary statements. For it is possible for the same thing to be imagined honey to the sight but not by the taste; and, since we have two eyes, not to be imagined the same by the sight of each, if their sight is dissimilar. For in response to the reasons mentioned previously [5. 1009ᵃ38–ᵇ12] for maintaining that
30 what is imagined is true, and that on this account everything is equally false and true—for the same things are not always imagined the same by everyone, or even by the same man, but are often imagined contrary in respect of the same time, as touch says there are two things when the fingers are crossed but sight one—[the reply is that they are imagined contrary]
35 not by the same perception and in the same aspect of it and
1011ᵇ in the same way and in the same time, so that *this* would be true. But doubtless it is on this account necessary that anyone who makes the statement for the sake of making it and not on account of perplexity should state that this is, not true, but true *to this person*.

1011ᵇ4. Indeed, as was said before [1011ᵃ20], it is necessary
5 to make everything relative to something, i.e. to opinion and

perception, so that nothing either has come to be or will be without someone first having that opinion; and if things have come to be or will be, it is plain that not everything can be relative to opinion. Again, if a thing is one,[1] it is relative to one thing or to something definite; and if the same thing is both a half and equal, still the equal is not relative to the double. So if, relative to that which has an opinion, the same 10 thing is a man and the object of opinion, the object of opinion, not that which has it, will be a man. And if each thing is to be relative to that which has an opinion, that which has an opinion will be relative to things infinite in form.

1011^b13. It has now been fully enough stated that the opinion that opposite assertions are not simultaneously true is the firmest of all, and what are the consequences for those who make this statement, and why they make it. Since it is 15 impossible for a contradiction to be true simultaneously of the same thing, it is obviously impossible too that contraries should simultaneously hold good of the same thing. For one of a pair of contraries is, in addition, a lack—a lack of substance; and a lack is a denial about some definite genus. 20 So if it is impossible simultaneously to affirm and deny truly, it is impossible also for contraries to hold good simultaneously, unless either both hold good in a certain way, or one in a certain way and the other baldly.

CHAPTER 7

1011^b23. *Nor, on the other hand, is it possible that there should be anything in the middle of a contradiction, but it is necessary either to assert or to deny any one thing of one thing.*

1011^b25. This will be plain if we first define what truth 2 and falsehood are: for to say that that which is is not or that which is not is, is a falsehood; and to say that that which is is and that which is not is not, is true; so that, also, he who says

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[1] Keep the words obelized in the OCT.

that a thing is or not will have the truth or be in error. But it is said that neither that which is nor that which is not either is not or is.

30   1011ᵇ29. Again, [something] will be in the middle of the contradiction either in the way in which what is grey is in the middle between dark and pale, or in the way in which what is neither of the two is in the middle between a man and a horse. If, then, in the latter way, it could not alter, for a thing alters from not-good into good or from that into not-good; but in fact it evidently always does, for there is no 35 alteration except into opposites and things in the middle.
1012ᵃ But if it is in the middle, that way too there would be some sort of [process of] coming to be pale which was not from not-pale; and that is not in fact observed.

1012ᵃ2. Again, thinking either affirms or denies everything thought of and conceived—this is plain from the definition— whenever it has the truth or is in error: whenever it compounds things *this* way—in an assertion or denial—it has the 5 truth, whenever *this* way, it is in error.

1012ᵃ5. Again, there must be something apart from *every* contradiction, if the thesis is not stated for the sake of stating it; so that someone will neither have the truth nor not have the truth and there will be something apart from that which is and that which is not, so that there will be a kind of alteration apart from [the processes of] coming to be and destruction.

1012ᵃ9. Again, there will be [a middle] even in those 10 genera in which the denial implies the contrary, as for instance among numbers a number which is neither odd nor not odd; but that is impossible, as is plain from the definition.

1012ᵃ12. Again, the process leads to infinity, and the things-that-are will not be merely half as many again but even more. For it will be possible in turn to deny *this* in

relation to the assertion and denial, and this [denial] will be something; for the substance is something else than it.　　　　15

1012ᵃ15. Again, when someone, asked whether something is pale, says that it is not, he has denied nothing else than its being; and its not being is a denial.

1012ᵃ17. Some people have derived this opinion as they have others of the paradoxes: unable to resolve captious arguments they give in to the argument and endorse the truth of its conclusion. While some state the thesis for reasons 20 of that kind, others do so because of seeking an argument for everything. In response to all these people the original [step] is from a definition. Definition arises from the necessity that they should themselves signify something, for the formula of [the thing of] which the name is a sign will be a definition.

1012ᵃ24. It seems that while Heraclitus' thesis, which says 25 that everything is and is not, makes everything true, that of Anaxagoras, that there is something in the middle of a contradiction, makes everything false; for when things are mixed the mixture is neither good nor not good, so that there is nothing true to be said.

CHAPTER 8

1012ᵃ29. In view of these distinctions it is obvious that the theses which some people state singly and about everything, 30 whether maintaining that nothing is true (for they assert that there is nothing to prevent everything being like the commensurability of a diagonal) or that everything is true, cannot hold good. These theses are practically the same as that of Heraclitus, for anyone who states that everything is 35 true *and* everything false also states each of these theses 1012ᵇ separately, so that if the former are impossible it is impossible also that the latter should be. Again, there are obviously contradictions which cannot be simultaneously true—or all false either, though that might indeed be thought the likelier possibility in view of what has been said.

5 In response to all such theses the right thing, as was also
stated in the arguments above [4. 1006ᵃ18], is to beg, not
that something is or is not, but that something signifies; so
that we must base discussion on a definition, having taken
for granted what 'falsehood' and 'true' signify. If what is
true to assert is nothing else than what is a falsehood to deny,[1]
10 it is impossible for everything to be false; for it is necessary
that one portion of the contradiction should be true. Again,
if it is necessary that everything be either asserted or denied,
it is impossible that both of the two should be false; for *one*
portion of a contradiction is a falsehood. Indeed all such
15 theses end up notoriously by eliminating themselves; for
anyone who says that everything is true also makes the
statement contrary to his own true, so that his own is not
true (for the contrary statement asserts that his is not true),
and anyone who says that everything is false says it of him-
self. But if each makes an exception of these cases—the former
that the contrary [of his statement] is alone not true, the
20 latter that his own is not false—they will end up none the less
begging an infinite number of statements, true and false;
for the statement which states that the true statement is true
is true, and this will go on to infinity.

1012ᵇ22. It is obvious that the statements made by some
people that everything is at rest, and by others that every-
thing is changing, are not true either. For if everything is at
25 rest, the same things will always be true and false, but
evidently this alters; for the speaker did not exist himself
once and will not again. And if everything is changing,
nothing will be true, and consequently everything false: but
that has been shown to be impossible. Again, it is necessary
that that which *is* alters, since alteration is from something
into something. On the other hand it is not the case that
30 everything is at rest or changing *sometimes*, and nothing
always; for there is something which is always changing the
things that change, and the first changer is itself changeless.

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[1] Read τὸ ἀληθὲς φάναι ἢ ἀποφάναι ψεῦδος.

METAPHYSICS BOOK DELTA

CHAPTER 1

1012^{b}34. We call an ORIGIN that point of an actual thing from which someone would move first, as for instance of a length 35 or a road there is this origin here, another from the contrary 1013^a direction;

1013^{a}1. and the point from which each thing would come to be most satisfactorily, as for instance in learning one should sometimes begin not from what is first, i.e. the origin of the actual thing, but from the point from which it is easiest to learn;

1013^{a}4. and that constituent from which a thing first comes to be, as for instance the keel of a ship and the foundation of 5 a house, and in the case of animals some believe it is the heart, some the brain, others whatever it may be of that kind;

1013^{a}7. and that non-constituent from which a thing first comes to be and from which change and alteration [in it] characteristically first begin, as for instance a child comes to be out of its father and mother, and fighting out of 10 swearing;

1013^{a}10. and that at whose decision things changed are changed and things altered altered, just as the origins [authorities] in cities, and dynasties and kingships and tyrannies, are called origins, and as skills are, especially master-skills.

1013^{a}14. Again, the point from which one first gets 15 acquainted with an actual thing is also called the thing's origin [principle], as for instance hypotheses of demonstrations.

27

1013ᵃ16. Causes are also so called in the same number of ways; for every cause is an origin.

1013ᵃ17. It is therefore common to every origin to be the first point from which a thing is, or comes to be, or from which one gets acquainted with it; and some of them are
20 constituents, others external. Hence an origin may be a nature, an element, a thought, a decision, a substance, or what a thing is for; for with many things the origin both of acquaintance and of change is what is good and what is fine.

CHAPTER 2

1013ᵃ24 (*Physics* II 3. 194ᵇ23). We call a CAUSE, in one sense,
25 that constituent out of which something comes to be, as for instance bronze of a statue and silver of a bowl, and their genera:

1013ᵃ26 (*Physics* II 3. 194ᵇ26). in another, the form and pattern, that is, the formula of what it is to be, and its genera, as for instance two-to-one and in general number of the octave; also the parts in a formula:

1013ᵃ29 (*Physics* II 3. 194ᵇ29). again, that from which the
30 first origin of alteration or rest [proceeds], as for instance one who planned something is its cause and as a father is of his child and in general what produces of what is produced and the alterer of what alters:

1013ᵃ32 (*Physics* II 3. 194ᵇ32). again, as a [thing's] fulfilment, that is, what it is for, as for instance health of someone's taking walks (why does he take walks? 'in order
35 to be healthy', we assert, and hold that in so saying we have displayed the cause):

1013ᵃ35. (*Physics* II 3. 194ᵇ35) also, anything that comes to be as a means to a fulfilment when what effected the change

was something else, as for instance of health slimming or 1013ᵇ
purging or medicines or instruments; for all these are for
the sake of the fulfilment, but differ from one another in that
some are instruments, others operations.

1013ᵇ3 (*Physics* II 3.195ᵃ3). These then are pretty well
all the ways in which causes are so called. From their
being so called in several ways it follows both that the same 5
things may have several causes, not coincidentally, as for
instance a statue has both the art of statuemaking and
bronze, not by virtue of some other thing but *qua* statue, yet
not in the same sense but the one as matter and the other as
that from which the change [proceeds]: and that things may
be causes of one another, as for instance exercise of fitness 10
and the latter of exercise, yet not in the same sense but one as
fulfilment and the other as origin of change. Again, the same
thing may be [cause] of contraries, for what when present is
cause of so-and-so we sometimes hold responsible when absent
for the contrary; for a shipwreck, for instance, the absence
of the helmsman whose presence was cause of preservation.
Both things, presence and lack, are causes, as effecting the 15
change.

1013ᵇ16 (*Physics* II 3. 195ᵃ15). All the causes here men-
tioned fall under four senses which are the most obvious. For
elements are causes of syllables, and matter of artefacts, and
fire and earth and all such things of bodies. and parts of 20
wholes, and hypotheses of a conclusion, as being that out of
which [the latter proceed]; and of them some, e.g. parts,
[are cause] as *subject*, others—the whole and the composition
and the form—as *what it is to be*. And a seed, a doctor, one who
planned, and in general what produces are all that from
which the *origin of alteration* or of keeping-the-same [proceeds]. 25
And some things [are causes] as *fulfilments* of the others, i.e.
as their good; for what other things are for is wont to be best,
and to be their fulfilment (let us assume that there is no
difference in calling it good or imagined good).

1013ᵇ28 (*Physics* II 3. 195ᵃ26). These, then, are the causes and this is the number of their forms. Their senses, though
30 numerous, also come under quite few headings. For causes are so called in several ways, even those of the same form in ways prior and posterior to one another; as for instance of health the doctor and the man-of-skill, of the octave the double and number, and in every case what includes any of the particular [causes].

35 1013ᵇ34 (*Physics* II 3. 195ᵃ32). Again, as the coincidental and the genera of these: as for instance of a statue, in one way Polyclitus and in another a statuemaker, because
1014ᵃ being Polyclitus coincides in a statuemaker; and what includes the coincidental, as for instance a man or also in general an animal is cause of a statue because Polyclitus is a man and a man is an animal. Among coincidentals also
5 some are more remote and some nearer than others, as for instance if someone pale and someone artistic were called cause of a statue, ¹and not just Polyclitus or a man.¹

1014ᵃ7 (*Physics* II 3. 195ᵇ3). And apart from² all those so called both properly and coincidentally, some are so called as being capable, others as actually functioning; of the building of a house, for instance, the housebuilder or the housebuilder housebuilding.

10 1014ᵃ10 (*Physics* II 3. 195ᵇ6). What causes are causes *of* will also be so called in the ways mentioned, as for instance *of* this statue or a statue or in general a likeness, and *of* this bronze or bronze or in general matter; and in the same way in the case of coincidentals.

1014ᵃ13 (*Physics* II 3. 195ᵇ10). Again, both the former and the latter will be so called in combination, as for instance not
15 Polyclitus or statuemaker but Polyclitus statuemaker.

¹⁻¹ These words are omitted in the MSS. of the *Physics* and bracketed in the OCT of the *Metaphysics*.
² Read παρά.

1014ᵃ15 (*Physics* II 3. 195ᵇ12). However, all of these amount to six, so called in two ways: either as the particular or as the genus or as the coincidental or as the genus of the coincidental or these as combined or as stated baldly; and all of them either as actually functioning or in respect of cap- 20 acity. They differ to this extent, that what is actually functioning and what is particular is and is not simultaneously with the things it causes; as for instance this [man] doctoring with this [man] being healed and this housebuilder house-building[1] with this thing being built into a house. With causes in respect of capacity this is not always the case; for the house and the housebuilder are not destroyed simulta- 25 neously.

CHAPTER 3

1014ᵃ26. The primary constituent of any compound, when indivisible in form into another form, is called an ELEMENT; as for instance the elements of a spoken sound are the things out of which the spoken sound is composed and into which it divides ultimately, but which do not themselves divide further into spoken sounds that are other in form; if they do 30 divide, their portions are of the same form, as a portion of water is water (which is not true of a syllable). Equally, those who speak of the elements of bodies mean the things into which bodies ultimately divide and which do not divide further into other things differing in form. Whether there is one or more than one such thing, that is what they call an 35 element.

1014ᵃ35. The elements of diagrams, and of demonstrations in general, are so called in much the same way. For the demonstrations that are primary and constituents of more 1014ᵇ than one other demonstration are called elements of demonstrations; of this kind are the primary syllogisms, out of three [terms] through one middle.

[1] Read ὅδε ὁ οἰκοδόμος οἰκοδομῶν.

1014ᵇ3. By transference from this, people term an element anything which, being one and small, is useful for many purposes; that is why what is small and simple and indivisible is also called an element. From this it comes that the most universal things are elements, because each of them, being one and simple, is a constituent of many things, or of everything, or nearly everything; also that the one and the point are thought by some to be origins. Therefore, since the things termed genera are universal and indivisible (for they have no formula), some people call genera elements; and more so than the differentia because the genus is more universal—for that of which the differentia holds good implies the genus, but not everything of which the genus holds good implies the differentia.

1014ᵇ14. It is common to all cases that the first constituent of each thing is an element of each.

CHAPTER 4

1014ᵇ16. We call NATURE, in one sense, the coming to be of things that *grow*, as if one were to pronounce the *u* in '*phusis*' long;

1014ᵇ17. in another, the first constituent out of which a growing thing grows;

1014ᵇ18. again, what makes the primary change in any naturally existing thing a constituent of the thing *qua* itself. All things are said to grow which gain enlargement through another thing by contact and assimilation or (as with embryos) adhesion. Assimilation differs from contact, for in the latter case there is no necessity for any other thing apart from contact, while in the case of things assimilated there is some one thing, the same in both, which makes them assimilated instead of in contact, and makes them one in respect of continuity and quantity, though not in respect of qualification.

1014ᵇ26. Again, that out of which a naturally existing thing first is or comes to be, and which is unstructured and not subject to loss of its own capacity, is called a nature, as for instance bronze is called the nature of a statue and of bronze artefacts, wood of wooden ones, and equally in the 30 other cases; for each is made out of these, the first matter being conserved. It is in this sense that the elements of naturally existing things are also asserted to be their nature (some mentioning fire, some earth, some air, some water, others something else of that kind, and others some or all of 35 these).

1014ᵇ35. In another sense again, the substance of naturally existing things is called their nature, as for instance those who say that [a thing's] primary composition is its nature, or as Empedocles says: 1015ᵃ

> None has a nature of the things that are;
> There is but mixture and exchange of things
> Mixed; but nature's name men fix on them.

This explains why, with things that exist or come to be naturally, although that out of which it is their nature to be or come to be is already present, we still do not assert that they possess their nature if they do not possess their form and 5 shape. What is made up of both of these, then, exists NATUR-ALLY, as for instance animals and their portions. The nature is both the first matter (and this in two ways, either first relative to the thing itself or first in general, as for instance with works of bronze the bronze is first relative to themselves but in general it is perhaps water, if all meltables are water), 10 and the form and substance, that is, the fulfilment of their coming to be.

1015ᵃ11. By transference from this case, all substance in general has come to be called nature, because nature is also a kind of substance.

1015ᵃ13. Of all those mentioned, then, the nature which is primary and fundamentally so called is the substance of

15 those things that possess an origin of change in themselves
qua themselves. For matter is called nature from being
recipient of this, and comings to be and growth from being
changes arising from it. And the origin of change of naturally
existing things is this, being a constituent in a way (either
potentially or in complete reality).

CHAPTER 5

20 1015ᵃ20. We call NECESSARY that without which, as a joint-
cause, it is not possible to live, as for instance breathing and
nourishment are necessary for an animal, because it is
incapable of existing without them: and anything without
which it is not possible for good to exist or come to be, or for
bad to be discarded or got rid of, as for instance drinking
25 medicine is necessary so as not to be ill, and sailing to Aegina
so as to get money.

1015ᵃ26. Again, that which is compulsory, and compulsion;
that is, what obstructs and thwarts an inclination or choice.
For what is compulsory is called necessary, which is why it is
also disagreeable, as Evenus asserts,

No necessary deed
But has an irksome nature,

30 and compulsion is a kind of necessity, as Sophocles says,

Compulsion does necessitate I do this;

and necessity is, rightly, thought of as not open to persuasion,
for it is contrary to that change which is in accordance with
choice and reasoning.

1015ᵃ33. Again, when it is not possible for a thing to be
otherwise, we assert that it is necessary for it to be so.
35 Indeed the others are all in some way called necessary by
virtue of this. For what is compulsory is called necessary
1015ᵇ either to do or to suffer when it is not possible to follow
inclination on account of that which compels, necessity being

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that on account of which it is not possible to do otherwise;
and the same is true in the case of the joint-causes of living
and of good, for when it is not possible that in the one case
good and in the other case living should exist without certain 5
things, those things are necessary and that cause is a kind of
necessity. Again, demonstration is among the things that are
necessary, because it is not possible for a thing to be otherwise
if it has been demonstrated baldly; the cause of this is the
initial [premisses], if the things from which the reasoning
proceeds are incapable of being otherwise.

1015ᵇ9. With some things, then, another thing is the cause 10
of their being necessary; with others nothing is, but on
account of them other things are of necessity. It follows that
the primary, and fundamentally, necessary thing is that
which is simple; for it is not possible that this should be in
more than one state, nor therefore thus and otherwise—for
it would thereby be in more than one state. Consequently,
if there are certain invariable and changeless things, there is 15
nothing compulsory or unnatural in them.

CHAPTER 6

1015ᵇ16. Things are called ONE either coincidentally or in
their own right: coincidentally as for instance Coriscus and
the artistic and artistic Coriscus (for it is the same thing to
say 'Coriscus and the artistic'[1] and 'artistic Coriscus') and
the artistic and the just and artistic and just Coriscus. For all 20
these are called one coincidentally, the just and the artistic
because they coincide in one substance, the artistic and
Coriscus because one coincides in the other. Equally the
artistic Coriscus is in a certain sense one with Coriscus
because one of the portions in the formula coincides in the 25
other, I mean the artistic in Coriscus; and the artistic
Coriscus with just Coriscus because a part of each coincides
in the same one thing. The same is true if the coincidental is

[1] Omit ⟨ἐν⟩.

spoken of in the case of a genus or in the case of the names of
30 something universal, as for instance that a man and an
artistic man are the same thing; for it is either because the
artistic coincides in what is one substance, the man, or
because both coincide in a certain particular thing, as for
instance Coriscus (except that they do not both hold good
in the same manner, but one doubtless as a genus and in the
substance, the other as a state or affection of the substance).
35 Everything called one coincidentally, then, is so called in
this sense.

1015ᵇ36. Of things called one in their own right, some are
1016ᵃ so called from being continuous, as for instance a bundle
from its tie and planks of wood from their glue; and a line,
even if bent, is called one if it is continuous, as is each part
[of the body], as for instance a leg and an arm. But among
these what is naturally continuous is more one than what is
5 artificially so. We call continuous that whose change in its
own right is one and cannot be otherwise; and a change is
one when indivisible, and indivisible in respect of time.
Whatever is one not by contact is continuous in its own
right; for if you put planks in contact with one another you
will not assert that these are one plank or body or anything
else continuous. Continuous things in general, then, are
10 called one even if they have a bend, but still more those that
have no bend, as for instance the shin or thigh more than the
leg because it is possible for a change of the leg not to be one
[change]. Also a straight line is more one than a bent line;
the line that is bent and has an angle we call both one and
15 not one, because it is possible for a change to be made in it
both all at once and not all at once, but that in a straight
line is always made all at once and no portion having magni-
tude is at rest while another changes, as happens with the
bent line.

1016ᵃ17. In another sense again, a thing is called one
from its subject's being undifferentiated in form, and it is
undifferentiated if its form is perceptually indivisible. And

the subject is either the first or the last relative to the final 20
state; for wine is called one and so is water, in that they are
indivisible in respect of form, and juices (as for instance oil
and wine) and meltables are all called one because the
ultimate subject of all of them is the same—for all these
things are water or air.

1016ᵃ24. Things are also called one whose genus is one,
being differentiated by opposite differentiae; and these are 25
all called one because the genus which is the subject of their
differentiae is one (as for instance a horse, a man, and a dog
are one something because all animals)—in much the same
sense, indeed, as the things whose matter is one. These
things are sometimes called one in this way, but sometimes[1]
the genus above is called the same, if they are the last forms 30
of the genus—that which is further above these;[2] as for
instance the isosceles and the equilateral are one and the
same figure because both triangles, but they are not the same
triangles. \

1016ᵃ32. Again, things are called one when the formula
saying what it is to be is indivisible relative to another
formula which indicates the actual thing (for taken by itself
every formula is divisible). For in this way what has grown 35
and is diminishing is one, because its formula is one, as is that
of the form in the case of planes. In general when the con- 1016ᵇ
ception which conceives what it is to be certain things is
indivisible and cannot separate them in time or place or
formula, they are most of all one, and those that are sub-
stances most of all among these. (For whenever things are
without division, they are universally called one in that
respect in which they are without it, as for instance if they are 5
without division *qua* man they are one man, if *qua* animal one
animal, if *qua* magnitude one magnitude).

1016ᵇ6. While most things, then, are called one from
either doing or possessing or being affected by or being

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[1] Omit ⟨ὅτι⟩.   [2] Read τὸ ἀνωτέρω τούτων.

related to some other thing that is one, the things called one
in the primary way are those whose substance is one, and
one either in continuity or in form or in formula; for things
10 which either are non-continuous or do not have one form or
do not have one formula we in fact reckon as more than one
thing.

1016ᵇ11. Again, although in a way we assert that any-
thing whatever is one which is a quantity and continuous,
in a way we do not if it is not some kind of whole, that is, if
it does not possess one form; as for instance if we observed the
parts of a shoe put together anyhow we should not so readily
15 assert that they were one (unless on account of their con-
tinuity), but only if they were put together in such a way as
to be a shoe and thereby possess some one form. That is why
a circular line is of all lines most one, because it is whole and
complete.

1016ᵇ17. To be one is to be a kind of origin of number;[1]
for a first measure is an origin, for what first makes each
20 genus intelligible to us is its first measure. The origin, there-
fore, of our acquaintance with each [kind of] thing is that
which is one. But that which is one is not the same thing in
every genus; for it may be here a quarter-tone, there a vowel
or mute, and another thing in the case of weight and some-
thing else in the case of change. But in every case that which
is one is indivisible either in quantity or in form. Now what is
25 indivisible in respect of quantity in all dimensions is called
a unit if it has no position, a point if it has position, and what
is divisible in respect of quantity in one dimension is a line, in
two a plane, in all three a body. In the reverse order, what
is divisible in two dimensions is a plane, in one dimension a
line, and what is divisible in no dimensions in respect of
30 quantity is a point and unit, the unit being without position,
the point with position.

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[1] Read ἀρχῇ τινί ἐστιν ἀριθμοῦ εἶναι.

1016ᵇ31. Again, some things are one in respect of number, some in respect of form, some in respect of genus, some in respect of analogy: in number things whose matter is one, in form things whose formula is one, in genus things whose figure of predication is the same, in respect of analogy any things related as are two further things. In every case the 35 earlier imply the later, as for instance what is one in number is also one in form but what is one in form is not all in number, and whatever is one in form is all one in genus but what 1017ᵃ is in genus is not all in form; it is, however, in analogy, but what is in analogy is not all in genus.

1017ᵃ3. It is obvious that what is MANY will be so called in opposite ways to what is one. For some things will be many from being non-continuous, some from possessing matter 5 (either the first or the last) which is divisible in respect of form, some from having more than one formula saying what it is to be.

CHAPTER 7

1017ᵃ7. That which IS may be so called either coincidentally or in its own right: coincidentally, as for instance we assert someone just to *be* artistic, and a man artistic, and someone artistic a man; in much the same way as we say that someone 10 artistic builds, because being artistic coincides in a house-builder or a housebuilder in someone artistic (for 'that this is this' signifies ʸthat in this this coincides'). And so it is in the cases mentioned; for when we say that a man is artistic and someone artistic a man, or that someone pale is artistic or the 15 latter pale, in the one case it is because both coincide in the same thing and in the other because it coincides in a thing-that-is; while the artistic is a man because the artistic coincides in the latter (it is in this way that the not-pale is said to *be*, because what it coincides in *is*). Things said to *be*

20 coincidentally, then, are so said in this way: either because both hold good of the same thing-that-is, or because the former holds good of a thing-that-is, or because the thing itself, of which that of which it is itself predicated holds good, is.

1017ᵃ22. All things which signify the figures of predication are said to *be* in their own right; for 'to be' signifies in the same number of ways as they are said. Since, therefore, 25 among things predicated some signify what a thing is, some a qualification, some a quantity, some a relative, some doing or being affected, some where, some when, 'to be' signifies the same thing as each of these. For there is no difference between 'a man *is* one that keeps-healthy' and 'a man keeps-healthy' or between 'a man *is* one that walks, or cuts' 30 and 'a man walks, or cuts', and equally in the other cases.

1017ᵃ31. Again, 'to be' and 'is' signify that a thing is true, and 'not to be' that it is not true but a falsehood, equally in the case of affirmation and of denial; as for instance that Socrates *is* artistic, that this is true, or that Socrates *is* not-35 pale, that it is true; and 'a diagonal *is not* commensurable' that it is a falsehood.

1017ᵇ 1017ᵃ35. Again, 'to be' and 'that which is' signify those of the things mentioned which *are* potentially and those which *are* in complete reality; for both that which sees potentially and that which sees in complete reality we assert to *be* a thing-that-sees, and in the same way both that which is 5 capable of using knowledge and that which is using it we assert to know, and both that of which rest already holds good and that which is capable of being-at-rest we assert to be-at-rest. Equally in the case of substances also; for both the idol in the stone and the half of a line and the grain which is not yet ripe we assert to *be*. When a thing is or is not yet *capable* must be defined elsewhere [Δ 12].

CHAPTER 8

1017ᵇ10. We call a SUBSTANCE both simple bodies, as for 10
instance earth and fire and water and everything of that
kind, and bodies in general and the things constituted out of
them—animals and deities and the portions of these; all
these are called substance because they are not said of a
subject but the rest are said of them:

1017ᵇ14. in another sense, any constituent of such things 15
(the things not said of a subject) which is cause of their being,
as for instance the soul in the case of an animal:

1017ᵇ17. again, those constituent portions of such things
which define and signify a this and with whose elimination
the whole thing is eliminated, as for instance the body with
the plane's (as some assert) and the plane with the line's; in 20
general it is thought by some that number is of this kind, on
the grounds that when it is eliminated there is nothing, and
it defines everything.

1017ᵇ21. Again, what it is to be, the formula of which is a
definition, is also called each thing's substance.

1017ᵇ23. It follows, then, that a substance is so called in 25
two senses: both the ultimate subject, which is not further
said of anything else; and whatever, being a this, is also
separable (such is each thing's shape and form).

CHAPTER 9

1017ᵇ27. Some things are called THE SAME coincidentally, as
for instance the pale and the artistic are the same thing 30
because they coincide in the same thing, and man and artistic
because one of them coincides in the other; and the artistic
[is] a man because it coincides in the man. And the latter is
the same as each of the other two and each of them as it, for
both the man and the artistic are in fact called the same

thing as the man who is artistic and he as them. This explains why all these things are not spoken of universally; for it is not true to say that every man and the artistic are the same
35 thing, for universals hold good in their own right and things
1018ᵃ that are coincidental are not in their own right. But in the case of particulars we do so speak baldly, for Socrates and artistic Socrates are thought to be the same thing. But 'Socrates' does not apply to a number of things, hence we do not say 'every Socrates' as we say 'every man'.

5   1018ᵃ4. Some things, then, are called the same in this way; others in their own right, in as many ways as that which is one. For things whose matter is one, either in form or number, are called the same, and things whose substance is one; so that it is obvious that sameness is a kind of oneness, either of the being of more than one thing or when a thing is treated as more than one (as for instance when someone says that a thing is the same as itself, which is to treat it as two things).

10   1018ᵃ9. We call OTHER when either their forms or their matter or the formula of their substance is more than one; and in general what is other is so called in opposite ways to what is the same.

      1018ᵃ12. We call DIFFERING any things which are other while being the same something, not only in number but either in form or in genus or in analogy; again, things whose genus is other; and contraries; and any things which possess otherness in their substance.

15   1018ᵃ15. We call SIMILAR both things whose affections are the same in every way; and things more of whose affections are the same than other; and those whose quality is one. And what has the greater number or the more fundamental of those contraries in respect of which it is possible for something to be modified, is similar to that thing.

      1018ᵃ18. Things are DISSIMILAR in ways opposite to those in which things are similar.

CHAPTER 10

1018ᵃ20. We call OPPOSITES contradiction, and contraries, 20 and relatives, and lack and possession, and the [points] from which and to which comings to be and destructions ultimately [lead]. And whenever it is not possible for things to be simultaneously present in that which is recipient of both of them, these are said to be opposed, either themselves or the things they are [made] out of; for grey and white do not hold good 25 simultaneously of the same thing, because the things they are [made] out of are opposed.

1018ᵃ25. We call CONTRARIES both those among the things that differ in respect of genus which are not capable of being present simultaneously in the same thing; and the things that differ most among those in the same genus; and the things that differ most among those in the same recipient; and the things that differ most among those under the same capacity; 30 and the things whose difference is greatest either baldly or in respect of genus or in respect of form. The remaining contraries are so called either from possessing such as these, or from being recipient of them, or from being productive of or affectible by them, or [in process of] producing or being affected by them; or are losses or acquisitions or possessions or lacks of them. 35

1018ᵃ35. Since that which is *one* and that which *is* may be so called in several ways, they are necessarily followed by the other things that are spoken of in respect of these; hence that which is *the same* and that which is *other* and that which is *contrary* are other in respect of each predication.

1018ᵃ38. We call OTHER IN FORM both any things that are 1018ᵇ of the same genus but not subordinate to one another; and any things that are in the same genus but possess some difference; and any things that possess contrariety in their substance. And contraries are other in form from one another, either all of them or those so called in the primary way; also

5 any things whose formulae are other in the last form of their
genus, as for instance a man and a horse are inseverable in
genus but their formulae are other; also any things which are
in the same substance but possess some difference.

1018ᵇ7. Things spoken of in ways opposite to these are THE
SAME IN FORM.

CHAPTER 11

1018ᵇ9. We call things PRIOR and POSTERIOR as follows.
10 Since in each genus something is primary and the origin, a
thing may be prior from being nearer a certain origin,
defined either baldly and by its nature or with reference to
a certain thing or somewhere or by certain people. In respect
of place, for instance, [things are prior] from being nearer to
some place defined either by their nature (as for instance the
middle or the end) or with reference to a chance object; and
15 what is further away is posterior. In respect of time [things
are prior] either, in the case of what has come to be, from
being further from the present (for the Trojan Wars are
prior to the Persian because they are further distant from the
present) or, in the case of what is to come, from being nearer
to the present (for the Nemean Games are prior to the
Pythian because nearer to the present, treated as origin and
20 primary). In respect of change, what is nearer the primary
bringer of change is prior, as for instance child to man; and
this too is a kind of origin, taken baldly. In respect of capacity,
things which exceed in capacity, i.e. the more capable, are
prior. Such is that whose decision it is necessary for the other,
25 posterior, thing to follow, so that the latter is changed when
it changes it and when not not; the decision is the origin. In
respect of arrangement, that is, whenever there is a formula
ranking things with reference to some one defined thing, a
second-ranker, for instance, is prior to a third-ranker and a
next-to-bottom string to a bottom one; the origin being in

the one case the leader, in the other the middle string. These
things, then, are called prior in this sense.   30

1018ᵇ30. In another sense, what is prior in acquaintance is
[treated] as also prior baldly.

1018ᵇ31. But among these the cases of a formula and of
perception are different: in respect of the formula universals
are prior, in respect of perception particulars. Also, in re-
spect of the formula the coincidental is prior to the whole 35
thing, as for instance the artistic to the artistic man; for
without the part the formula will not be whole. And yet it
is not possible to *be* artistic without being an artistic some-
thing.

1018ᵇ37. Again, the affections of what is prior are called
prior, as for instance straightness to smoothness; for the one
is an affection of a line in its own right, the other of a surface. 1019ª

1019ª1. Besides things called prior and posterior in this
way, a thing is prior in respect of its nature and substance
when it is possible for it to *be* without other things but not
them without it: this division was used by Plato. But since
there are many ways of being, firstly, the subject is prior and 5
for that reason the substance is prior; but, secondly, there
is a difference between the cases of capacity and complete
reality, some things being prior in respect of capacity, some in
respect of complete reality. Half [of a line], for instance, [is
prior] in respect of capacity to the whole [line], and the
portion to the whole, and matter to substance; but in respect
of complete reality they are posterior, for when the others 10
are dissolved they will *be* in complete reality.

1019ª11. In a certain sense, everything called prior and
posterior is so called in respect of these last; for it is possible
for some things to *be* without the others in respect of coming
to be, as for instance a whole without its parts; and for others
in respect of destruction, as for instance a portion without
the whole. Equally in the other cases also.   .

CHAPTER 12

15   1019ᵃ15. We call a CAPACITY what originates a change or
alteration either in another thing or *qua* other, as for instance
housebuilding is a capacity which is not a constituent of the
thing being built, but doctoring, which is a capacity, might
be a constituent of the thing being doctored, but not of it
qua being doctored.

     1019ᵃ19. We call a capacity what originates an alteration
20   or change not only in this way *in* another thing or *qua* other,
but also *by the agency of* another thing or *qua* other. For in any
respect in which a thing affected is at all affected, we assert it
to be capable of being affected; sometimes whatever the
affection, sometimes not in respect of every affection but if it
is for the better.

     1019ᵃ23. Again, there is the [capacity] to perform thus
satisfactorily or at will. For those who have only got about or
25   spoken, but not satisfactorily or not as they chose, we some-
times assert not to be capable of speaking or walking; and
equally too in the case of being affected.

     1019ᵃ26. Again, any state in respect of which a thing is
wholly unaffectible or unalterable or not easy to change for
the worse is called a capacity. For things get broken and
crushed and bent and generally destroyed not from being
30   capable but from being not capable and in some way de-
ficient. A thing is unaffectible by such treatment if owing
to a capacity—i.e. from being capable and in some state or
other—it does not get affected easily, or seriously. Those are
all the ways in which capacities are so called.

     1019ᵃ33. Things called CAPABLE in one sense will be those
35   which originate change or alteration (for what can keep a
thing the same is in a way also capable) in other things or
1019ᵇ   *qua* other; in another sense, if something else possesses such
a capacity over them; in another sense, if they possess the

capacity to alter somehow or other, whether for the worse or
for the better. (For a thing in [process of] destruction is
thought to be capable of being in [process of] destruction; or
it would not be destroyed, if it were incapable. As things are,
it possesses a certain disposition to, and cause and origin of, 5
this kind of affection. Sometimes, then, it is thought to be
such from possessing something, sometimes from lacking.
But if a lack is in a way a possession, all would be so from
possessing something,[1] so that things are capable both from
possessing a sort of possession and origin, and from possessing 10
the lack of this, if it is possible to possess a lack; or, if that is
not possible, homonymously.[1]) [Things are called capable]
in another sense if neither other things nor [they] *qua* other
possess a capacity for, or will originate, their destruction.
Again, all these things [are called capable] either merely
because they might turn out to come to be or not to come to
be, or because they might do so satisfactorily. For the latter
kind of capacity is inherent even in inanimate things, as for
instance in instruments; for people assert that one lyre is
capable of sounding, but another not at all, if it is out of 15
tune.

1019ᵇ15. INCAPACITY is lack of capacity, i.e. of the kind of
origin described, either in general or by something which
characteristically possesses it or even at a time already
characteristic of its possession. For people would not assert
in the same way that a boy, a grown man, and a eunuch are
incapable of begetting. Again, corresponding to each of the
two capacities (for merely changing things, and for changing 20
them satisfactorily) there is an opposite incapacity.

1019ᵇ21. Some things are also called INCAPABLE in respect
of this incapacity.

1019ᵇ22. But there is another sense in which things can be
both capable and incapable [POSSIBLE and IMPOSSIBLE]. That
of which the contrary is true of necessity is impossible; as

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[1] Put εἰ δὲ μή, ὁμωνύμως at the end of the sentence.

25 for instance that a diagonal be commensurable, because
such a thing is a falsehood of which the contrary is not only
true but also a necessity.[1] Consequently, that it is commen-
surable is not only a falsehood but also a falsehood of neces-
sity. The contrary of this, the possible,[2] [occurs] whenever it
is not necessary that the contrary be a falsehood; as for
instance it is possible that a man be sitting down, for it is not
30 of necessity a falsehood that he is not sitting down. In one
sense, then, the possible, as stated, signifies what is not of
necessity a falsehood; in another what is true; and in another
what admits of being true.

1019ᵇ33. A capacity [POWER] in geometry is so called by
transference.

1019ᵇ34. These things, then, are capable not in respect of a
35 capacity. Those which are so called in respect of a capacity
1020ᵃ are all so called with reference to the one which is primary,
that is, the origin of alteration in something else or *qua*
something else. For the others are called capable either from
something else's possessing a capacity of that kind over them,
or from its not possessing it, or from its possessing it in a par-
ticular way; and equally with things which are incapable.
5 It follows that the fundamental definition of the primary
capacity must be: what originates alteration in something
else or *qua* something else.

CHAPTER 13

1020ᵃ7. We call a QUANTITY what is divisible into con-
stituents each of which has the nature of a one and a this. A
certain quantity is a plurality if it is countable, a magnitude
10 if it is measurable; that which is potentially divisible into
non-continuous parts is called a plurality, into continuous a
magnitude. Of magnitudes those which are continuous in
one dimension are lengths, in two breadths, in three depths.

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[1] Omit ἀσύμμετρον εἶναι.   [2] Read τὸ δυνατόν.

Of these, limited plurality is a number, length a line, breadth a surface, depth a body.

1020ᵃ14. Again, some things are called a certain quantity 15 in their own right, others coincidentally, as for instance a line is a certain quantity in its own right, the artistic coincidentally.

1020ᵃ17. Of those in their own right some are so in respect of their substance, as for instance a line is a certain quantity; for 'a certain quantity' is a constituent of the formula which says what it is. Others are affections and states of such a 20 substance, as for instance the much and the little, and long and short, and broad and narrow, and deep and shallow, and the others of that kind. Both the large and the small, and larger and smaller, when so called both in their own right and with reference to one another, are affections of a quantity 25 in their own right. However, these names are also transferred to other things.

1020ᵃ26. Of things called quantities coincidentally, some are so called in the way in which it was said [1020ᵃ14–17] that the artistic and the pale are quantities, from there being a certain quantity of which they hold good; others as changes and times, for these are also called certain quantities and continuous, from those things of which they are affections 30 being divisible—I mean not the thing being changed but that [amount by] which it was changed; for from that being a quantity the change is a quantity also, and the time from *its* being.

CHAPTER 14

1020ᵃ33. We call a QUALIFICATION, in one sense, the differentia of a substance, as for instance a man is an animal qualified in a certain way because he is two-footed, a horse because it is four-footed; and a circle is a figure qualified in a certain 35

1020ᵇ   way because it is without angles; the differentia in respect of substance being a quality. This is one sense in which a quality is so called.

1020ᵇ2. Another sense is exemplified by changeless things and mathematical objects, as in the case of numbers being qualified in certain ways (e.g. composite [numbers] which, 5 being of more than one dimension, are represented by a plane and a solid, i.e. x times y and x times y times z); and in general any constituent of the substance apart from quantity. (For the substance of each thing is what [it] is once, as for instance what six is, not two or three times, but once; for six is once six.)

1020ᵇ8. Again, any affections of changing substances, as 10 for instance hotness and coldness, and paleness and darkness, heaviness and lightness, and all of that kind. Bodies are also said to be *modified* in respect of alterations of these.

1020ᵇ12. Again, [there are qualities] in respect of excellence and badness, and in general the bad and good.

1020ᵇ13. Approximately, a qualification could be so called in two senses, and of these one is the most fundamental. 15 For the primary quality is the differentia of a substance (this includes the quality in a number, for that is a kind of differentia of substances, but not of changeables or not of them *qua* changing). Others are the affections of changeables *qua* changing, and the differentiae of changes. The affections include excellence and badness, for these indicate differentiae 20 of change and of actual functioning in respect of which things in [process of] change act or are affected satisfactorily or not. For what is capable of changing or functioning in *this* way is good; what in *that*—the contrary—way, evil. The good and the bad signify qualification in the case of living things especially, and among them especially in the case of those 25 which possess [the power of] choice.

CHAPTER 15

1020^b26. Some things are called RELATIVE as double is relative to half and triple relative to a third, and in general multiple relative to submultiple and exceeding relative to exceeded; others as the able-to-heat is relative to the heatable and the able-to-cut relative to the cuttable, and in general 30 the able-to-act relative to the affectible; and others as the measurable is relative to the measure, and knowable relative to knowledge, and perceptible relative to perception.

1020^b32. The first kind are called numerical [relatives], either baldly or in a definite way, and relative to themselves or to one. For instance: the double is a definite number relative to one; the multiple is related to one numerically, 35 but not by any definite number such as this or this; the one- 1021^a and-a-half is related to its reciprocal by a definite number relative to a number; the one-and-a-bit is related to its reciprocal by an indefinite number, as the multiple is related to one. The exceeding is numerically wholly indefinite relative to the exceeded; for a number is commensurable 5 and number is not said of the non-commensurable, but the exceeding is, relative to the exceeded, so much and something again, and this is indefinite—for it is as chance has it, either equal or not equal. These relatives, then, are all called numerical relatives and affections of number.

1021^a9. So again, in another sense, are the equal and similar and the same. For they are all so called in respect of 10 the one; for things are the same whose substance is one, similar whose quality is one, equal whose quantity is one. And the one is the origin and measure of a number, so that all these are called numerical relatives, but not in the same sense.

1021^a14. Things able-to-act and affectible [are relatives] 15 in respect of their capacity to act and be affected and the actual functioning of these capacities; as for instance the

able-to-heat is relative to the heatable because it is capable, and in turn the heating is relative to the being-heated and the cutting to the being-cut in that they are actually functioning. Numerical relatives do not have actual functionings except
20 in a sense described elsewhere; actual functionings involving change do not hold good of them. With some relatives in respect of capacity a temporal reference is included in the statement of the relation, as for instance what *has* produced relative to what has been produced and what *will* produce relative to what will be produced. For a father is called father of his son in this way; for one of them is a thing that has produced and the other a thing that has been affected
25 in a certain way.

1021ª25. Again, some things [are relatives] in respect of a lack of capacity, as the incapable and anything else spoken of in that way, as for instance the invisible.

1021ª26. Things called numerical relatives or relatives in respect of capacity are all relatives from being called just what they are *of* something else, not from the other thing being relative to them. But the measurable and the know-
30 able and the thinkable are called relatives from something else being called [what it is] relative to them. For 'thinkable' signifies that there exists thought of it, but the thought is not relative to that of which it is a thought (for then we should have said the same thing twice). And equally, sight is the
1021ᵇ sight of something, not of that of which it is the sight (al-though it is true to say that) but relative to colour or some other such thing. The other way we shall be saying the same thing twice: 'sight is of that of which sight is.'

1021ᵇ3. Of things called relatives in their own right, then, some are so called in the ways mentioned; others if their
5 genera are of those kinds, as for instance doctoring is among the relatives because its genus, knowledge, is thought to be a relative;

1021^b6. again, all those things in respect of which their possessors are called relatives; as for instance equality is a relative because the equal is and similarity because the similar is;

1021^b8. other things coincidentally; as for instance a man is a relative because being double coincides in him, and that 10 is among the relatives; or the pale, if being double and pale coincide in the same thing.

CHAPTER 16

1021^b12. We call COMPLETE, in one sense, that outside which not even one portion is to be found, as for instance the complete time of each thing is that outside which there is no time to be found which is part of that time:

1021^b14. also, that which in respect of excellence and 15 goodness cannot be surpassed relative to its genus, as for instance a doctor is complete and a flautist is complete when they are without deficiency in respect of the form of their own proper excellence. It is in this way that, transferring it to the case of bad things, we speak of a complete scandalmonger and a complete thief—as indeed we even call them good: a good thief and a good scandalmonger. And excellence is 20 a kind of completion, for each thing is complete and every substance is complete when in respect of the form of its own proper excellence no portion of its natural magnitude is deficient.

1021^b23. Again, things which have reached their fulfilment, when it is worth while, are called complete, for they are complete by virtue of having attained their fulfilment; 25 so that, since a fulfilment is something ultimate, we also say, transferring it to the case of worthless things, that a thing has been completely spoilt and completely destroyed when there is no deficiency in its destruction and badness but it has reached the ultimate. (That is why even life's-end is by

transference called a fulfilment, because both are ultimate.
30 A [thing's] fulfilment, i.e. what it is for, is ultimate.)

1021ᵇ30. This, then, is the number of ways in which things
called complete in their own right are so called: some from
their being without deficiency in respect of goodness and not
to be surpassed and having nothing to be found outside
them, others in respect of being in general not to be surpassed
1022ᵃ in their various genera and having nothing outside them.
The rest are made so by virtue of these, from their either
producing or possessing or fitting something of such a kind,
or from their being somehow or other so called with reference
to the things called complete in the primary way.

CHAPTER 17

1022ᵃ4. We call a LIMIT: the terminus of each thing, i.e. the
5 first thing outside which there is nothing to be found and the
first thing inside which everything is to be found;

1022ᵃ5. and anything that is the form of a magnitude or
of [something] possessing magnitude;

1022ᵃ6. and the fulfilment of each thing (such is that
towards which change and action [lead], not that from which
—but sometimes both, from which and towards which, i.e.
that for which);[1]

1022ᵃ8. and the substance of each thing, i.e. what it is to be
10 each thing, for that is the limit of acquaintance and, if of
acquaintance, of the actual thing too.

1022ᵃ10. It is obvious from this that a limit is so called in
all the ways that an origin is, and more: for an origin is a
kind of limit, but not every limit is an origin.

[1] Close bracket after καὶ τὸ οὗ ἕνεκα.

CHAPTER 18

1022ᵃ14. That BY WHICH may be so called in several ways.
In one sense it is the form and substance of each actual thing, 15
as for instance that by which [a man is] good is good itself.
In another sense it is the primary thing in which it is charac-
teristic of something to come to be, as for instance colour in
a surface. While that called by which in the primary way is
thus the form, each thing's matter and each thing's primary
subject is so called in a secondary way. In general, that by
which will hold good in the same number of ways as cause; 20
for we say 'by what did he come?' or 'what did he come
for?' and 'by what did he miscalculate, or calculate?' or
'what is the cause of his calculation, or miscalculation?'
Again, what involves position is called by which: 'by which
he is standing', 'by which he is walking'—for all these[1]
signify position and place.

1022ᵃ24. It follows that that which is BY ITSELF [IN ITS 25
OWN RIGHT] is necessarily also so called in several ways. For
in one, [a thing is] in its own right what it is to be each
thing, as for instance Callias is in his own right Callias, and
what it is to be Callias;

1022ᵃ27. in another, any constituent of what it is, as for
instance Callias is in his own right an animal; for animal is a
constituent of his formula, for Callias is a certain animal;

1022ᵃ29. again if it, or one of its [parts], is the primary 30
recipient, as for instance a surface is pale in its own right and
a man is alive in his own right (for the soul, the primary
recipient of life, is a certain part of a man);

1022ᵃ32. again, what has no other cause; for there are
several causes of a man—animal, the two-footed—but
nevertheless a man is a man in his own right;

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[1] Read πάντα γὰρ ταῦτα (correcting a misprint in the OCT).

35   1022ª35, again, [a thing is] in its own right any things that
hold good of it alone and *qua* separated on its own account
alone.[1]

CHAPTER 19

1022ᵇ 1022ᵇ1. We call a DISPOSITION the arrangement, either by
place or capacity or form, of something possessing parts. For
it ought to be some kind of position, as the very name
'disposition' indicates.

CHAPTER 20

1022ᵇ4. We call a POSSESSION, in one sense [wearing], what is
5 as it were a certain functioning of the wearer and worn, like
a certain action or change. For whenever one thing produces
and another is produced, there is producing between them;
just so there is wearing between one who wears clothes and
the clothes worn. Obviously it is not possible to possess this
kind of possession, for we shall go on to infinity if there is
10 such a thing as possessing the possession of what is possessed.

1022ᵇ10. In another sense we call possession [state] a
disposition by virtue of which the thing disposed is either
well or ill disposed, and either in its own right or with
reference to something else; as for instance health is a certain
state, for it is such a disposition. Again, anything that is a
portion of such a disposition we call a state; that is why the
excellence of a thing's parts is a certain state.

CHAPTER 21

15 1022ᵇ15. We call an AFFECTION, in one sense, a quality in
respect of which it is possible to be modified, as for instance
the pale and the dark, and sweet and bitter, and heaviness and
lightness, and all others of that kind;

[1] Read καὶ ᾗ μόνον δι' αὐτὸ κεχωρισμένον καθ' αὐτό.

1022^b18. in another sense, the functionings of these, i.e. the actual modifications;

1022^b19. of these again, mainly injurious modifications and changes, and especially painful injuries.   20

1022^b20. Again, severe misfortunes are called affections.

CHAPTER 22

1022^b22. We speak of a LACK, in one sense, if a thing does not possess something characteristically possessed, even if it is not characteristic of *that* thing to possess it; as for instance a plant is said to lack eyes;

1022^b24. in another sense, if a thing does not possess what is characteristically possessed by it or its genus; as for 25 instance a blind man and a mole lack sight in different ways, the one in respect of its genus, the other in its own right;

1022^b27. again, if a thing does not possess something characteristic even at the time when it is characteristic to possess it (for blindness is a certain lack, yet one is not blind at every age but only if one does not possess [sight] at an age at which its possession is characteristic); and equally too if it 30 does not possess something in that which, and with respect to that which, and relative to that which, and in the manner which, is characteristic.

1022^b31. Again, the compulsory removal of each thing is called a lack.

1022^b32. Lacks are so called in the same number of ways as denials containing 'un-' and the like. For a thing is called *un*equal from not possessing its characteristic equality, *in*-visible from possessing colour either not at all or in a meagre 35 degree, and foot*less* from possessing either no feet at all or meagre ones.   .

1023ᵃ   1022ᵇ36. Again, [we speak of a lack] from a thing's possessing little, as for instance stoneless fruits (this is, in a way, possessing in a meagre degree);

1023ᵃ2. again, from the thing's not being easy or not being satisfactory, as for instance the uncuttable not just from its not cutting but also from its not cutting easily or satisfactorily;

1023ᵃ4. again, from not possessing at all; for a one-eyed
5 man is not called blind, but only a man who possesses no sight in either eye. That is why not everyone is good or bad, or just or unjust, but there is also the middle [state].

CHAPTER 23

1023ᵃ8. POSSESSING is so called in several ways. In one sense it is directing a thing according to one's own nature or
10 according to one's own inclination. This is why fever is said to possess a man and tyrants cities and wearers their clothes;

1023ᵃ11. in another sense, that of which, as a recipient, something is a constituent, as for instance bronze possesses the form of a statue and a body possesses disease;

1023ᵃ13. in another sense, as a container its contents; for
15 a thing is said to be possessed by the container in which it is, as for instance we assert that a bucket possesses liquid and a city men and a ship seamen. In this way also a whole possesses its parts.

1023ᵃ17. Again, what prevents something changing or acting according to its own inclination is said to possess that thing, as for instance columns their overlying weights and as
20 poets make Atlas possess the sky (as if it would collapse on to the earth, as even some authorities on nature assert). This is the sense in which what fuses things is said to possess the things it fuses, as if each would have separated according to its own inclination.

1023ᵃ23. Being IN something is so called in similar, and
corresponding, ways to possessing.   25

CHAPTER 24

1023ᵃ26. We call being OUT OF something, in one sense, that
out of which as matter a thing is, and this in two ways, either
in respect of the first genus or in respect of the last form; as
for instance in one way everything meltable is out of water
but in another way a statue is out of bronze;

1023ᵃ29. in another sense, as out of the first origin that 30
effected change; as for instance 'What did the fighting
[come] out of?' 'out of the swearing'—because that was the
origin of the fighting;

1023ᵃ31. in another sense, as out of what is composed out
of matter and shape, as parts are out of a whole, a line out of
the *Iliad*, and stones out of a house; for the shape is a fulfil-
ment, and what has attained fulfilment is complete;

1023ᵃ35. others as the form is out of the part, as for 35
instance a man is out of the two-footed and a syllable out of
an element (for this is different from the way in which the 1023ᵇ
statue is out of bronze; for a composite substance is out of
perceptible matter, but a form is also out of the matter of the
form).

1023ᵇ3. Some things, then, are so called in these ways;
others if one of these senses holds good of something in part,
as for instance a child is out of its father and mother, and
plants out of earth, because out of a certain part of them;   5

1023ᵇ5. in another sense, that after which in time, as for
instance night is out of day and a storm out of good weather,
because one is after the other. And of these, some are so
called from having alteration into one another, like those
just mentioned, others from being merely successive in

10 respect of time, as for instance the voyage came to be out of
the equinox because it came to be after the equinox, and the
Thargelia out of the Dionysia because after the Dionysia.

CHAPTER 25

1023ᵇ12. We call a PART, in one sense, the result of any kind
of division of a quantity; for what is subtracted from a
quantity *qua* quantity is always called a part of it, as two is
15 called a part of three in a way;

1023ᵇ15. in another sense, only those among such parts
which give the measure of a thing; that is why two is called
a part of three in a way, but in a way not.

1023ᵇ17. Again, the results of any non-quantitative
division of a form are also called its portions; that is why
people assert that forms are portions of their genus;

20 1023ᵇ19. again, anything into which a whole, whether a
form or something that possesses a form, is divided, or out of
which it is composed, as for instance both the bronze (that is,
the matter in which the form is) and the angles are parts of
a bronze cube, or a bronze ball.

1023ᵇ22. Again, whatever is in the formula indicating
each thing is also a portion of the whole; that is why a genus
is also called a part of its form, although in a different way
25 the form is a part of its genus.

CHAPTER 26

1023ᵇ26. We call a WHOLE both that of which no part is
absent out of those of which we call it a whole naturally;
and what contains its contents in such a manner that they
are one thing, and this in two ways, either as *each* being one
thing or as *making up* one thing. For what is universal and

what is said to be as a whole, implying that it is a certain 30
whole, is universal as containing several things, by being
predicated of each of them and by their all—each one—
being one thing; as for instance man, horse, god, because
they are all animals. But what is continuous and limited [is
a whole] when it is some one thing made up of more than
one thing, especially when these are potential constituents
of it but, if not, when they are actual. Among all these, what 35
is naturally of such a kind is more [a whole] than what is
artificially, as we said in the case of what is one [6. 1016ᵃ4];
wholeness being a kind of oneness.

1024ᵃ1. Again, of quantities possessing a beginning, a 1024ᵃ
middle, and an end, any in which position makes no differ-
ence is called ALL, any in which it does, whole. Any that
admit both are both wholes and alls; these are the things
whose nature, though not their shape, survives transposition, 5
as for instance wax and a cloak; for they are called both
whole and all, for they possess both. But water and other
liquids, and number, are called all; and we do not speak of
the whole number or the whole water, unless by transference.

1024ᵃ8. We call EVERY those things to which 'all' is applied
as to one thing, 'every' being applied to them as to distinct
things: all this number, every [one of] these units.   10

CHAPTER 27

1024ᵃ11. Not every chance quantity may be called TRUN-
CATED; it ought to be divisible into parts and also a whole.
For two is not truncated when one of its ones is subtracted,
for what is taken from a thing by truncation and what
remains are never equal; but neither, in general, is any
number, for the substance ought also to remain—if a cup is 15
truncated, it must still be a cup; the number is not the same.
In addition to this, not even everything that has dissimilar
parts [may be called truncated], for in one way a number

also has dissimilar parts, e.g. two and three. But in general nothing in which position makes no difference, as for instance
20 water and fire, can be truncated; to be such, a thing ought to possess a position by virtue of its substance. Again, [it must be] continuous; for a musical scale is out of dissimilar parts and possesses position, but cannot become truncated. In addition to this, not even wholes are truncated as a result of the lack of *any* portion whatever; for it ought not to be anything fundamental to their substance, but neither can it be anywhere whatever. For instance, a cup in which a hole has
25 been drilled is not truncated, but only if a handle or some extremity [is removed]; and a man not if flesh or spleen [is removed], but if some extremity is—and not any extremity, but only one which cannot come to exist once wholly removed: for this reason bald men are not truncated.

CHAPTER 28

1024ᵃ29. We speak of a GENUS either if the coming to be of
30 things possessing the same form is continuous, as for instance 'so long as the genus of men is' means 'while their coming to be is continuous';

1024ᵃ31. or if people [stem] from someone who first brought them into existence; for in this way some are called Hellenes by genus and others Ionians, from their [stemming] from Hellen and Ion who first begot them; and more espe-
35 cially from the begetter than from the matter (for people *are* called by genus from the female too, as some are from Pyrrha);

1024ᵇ 1024ᵃ36. again, as the plane is the genus of figures that are plane, and the solid of those that are solid; for each of the figures is either a plane of such and such a kind or a solid of such and such a kind, that being the subject of its differentiae;

1024ᵇ4. again, as the first constituent in formulae which is 5
stated in [answer to the question] what a thing is; for this is
the genus (and its qualities are called differentiae).

1024ᵇ6. These, then, are all the ways in which a genus is so
called: in respect of the continuous coming to be of the same
form; in respect of the first thing, having the same form, to
effect change in a thing; and as matter—for what differentiae
and qualities are *of* is their subject, which we call the matter.

1024ᵇ9. Things are called OTHER IN GENUS whose first 10
subjects are other, and will not analyse either one into the
other or both into the same thing; as for instance form and
matter are other in genus;

1024ᵇ12. also any things spoken of according to different
figures in the predication of that which is (for of the things-
that-are some signify what a thing is, others a certain quali-
fication, others in the other ways previously distinguished);
for these will not analyse either into one another or into 15
some one thing.

CHAPTER 29

1024ᵇ17. We call a FALSEHOOD, in one sense, what is a false-
hood as an *actual thing*: and this sometimes from the thing's
being not compounded, or incapable of being compounded,
as we say of a diagonal's being commensurable or of your 20
sitting down—for one of these is a falsehood always, the other
sometimes (for in this way these things are not things-that-
are); sometimes anything which, while being a thing-that-is,
is nevertheless characteristically imagined either not [to be]
such as it is or [to be] something that is not, as for instance a
sketch, and dreams—for these are something, but not what
they impose on us to imagine [they are]. These, then, are the
ways in which actual things are called false, either from their 25
not themselves being or from their giving rise to an imagina-
tion of something that is not.

1024ᵇ26. A false *formula* is, *qua* false, of things that are not, and that is why every formula is false of something other than that of which it is true, as for instance that of a circle is false of a triangle. Each thing has, in one way, one formula, 30 that of what it is to be; in another way it has many, since both it and it affected (as for instance Socrates and artistic Socrates) are in a way the same thing. A false formula is, taken baldly, the formula of nothing. That is why Antisthenes naïvely considered that nothing can legitimately be described except by its own proper formula, one to one; an opinion from which it resulted that there is no such thing as contradiction, nor even practically as falsity. But there is such a 35 thing as describing each thing not only by its own formula but also by another's; this may be done altogether falsely, 1025ᵃ but also in a way truly, as eight is double, by the formula of two.

1025ᵃ1. Apart from these ways of calling things false, a false *man* is one who uses such formulae recklessly and deliberately, not on any other account than their own, and who 5 imposes such formulae on other people; just as we assert that actual things are false when they impose a false imagination. This explains what is misleading about the argument in the *Hippias* that the same man is false and true. For it takes for false the man who is *capable* of falsity (and that is he who knows, the wise man); and again it takes for better the 10 man who does wrong *willingly*. The latter falsehood is got by induction: for a man who limps willingly is superior to one who does so unwillingly (meaning by limping pretending, since if he were willingly *lame* he would doubtless be inferior, as with character-traits).

CHAPTER 30

1025ᵃ14. We call COINCIDENTAL what holds good of some- 15 thing and is true to say, but neither of necessity nor for the most part; as for instance if someone in digging a trench for a plant found treasure. This—the finding of treasure—is

accordingly coincidental for him who is digging the trench;
for the one is not of necessity out of or after the other, nor
does one for the most part find treasure when planting. And
someone artistic might be pale, but since this comes to be 20
neither of necessity nor for the most part, we call it coinciden-
tal. Hence, since there are things that hold good and things
they hold good of, and in certain cases a place and a time of
holding good, whatever holds good but not because it is this
or now or here will be coincidental. There is thus no definite
cause of the coincidental, but a chance one, and that is 25
indefinite. It was a coincidence for someone to visit Aegina
if he went there not in order to visit but having been forced
off course by a storm or captured by pirates. The coincidence
has come to be, or is, but *qua* another thing, not *qua* itself; for
the storm was the cause of his not getting to the place he was
sailing for.

1025ᵃ30. Things are called coincidental in other ways also, 30
as for instance whatever holds good of each thing in its own
right without being in its substance, as for instance possessing
two right angles [does] of a triangle. These admit of being
invariable, but the former do not. The matter is discussed
elsewhere.

METAPHYSICS BOOK EPSILON

CHAPTER 1

1025^{b}3. We are seeking the origins and the causes of the things-that-are, and plainly of them *qua* things-that-are. For
5 there is a particular cause of health and of fitness, and there are origins and elements and causes of the objects of mathematics, and in general every thinking, or thought-partaking, discipline deals with causes and origins, more or less precise. But all these disciplines delimit a particular thing-that-is— a particular genus—and treat of it, not of that which *is*
10 baldly or *qua* thing-that-is. Nor do they produce any statement of what it is; but starting from that—having either indicated it by the senses or found a hypothesis as to what it is—they proceed from that to demonstrate, either more or less rigorously, the things that hold good in its own right of the genus with which they are dealing. For that reason it is obvious that from such an induction there is no demonstration
15 of substance, i.e. of what a thing is, but some other manner of indicating it. Equally, neither is anything said as to whether the genus of which they treat is or is not, because it falls to the same thinking to indicate both what a thing is and whether it is.

1025^{b}18. But since physics is one of the disciplines dealing
20 with a particular genus of thing-that-is (for it deals with the sort of substance in which the origin of change and of keeping-the-same is in itself), it is plain that this discipline is neither practical nor productive. For in the case of the producible the origin is in the producer—either intelligence or art or capacity of some kind; and in the case of the doable it is in the doer—choice: for the doable and the choosable
25 are the same. It follows that, if all thinking is either practical or productive or theoretical, that concerned with nature

66

must be of a theoretical kind, but a kind which studies such of the things-that-are as are capable of being changed, and substance as in a formula for the most part, yet not separable [substance].

1025ᵇ28. We must pay attention to the manner of a thing's formula, i.e. of what it is to be that thing; since the inquiry 30 will get nowhere otherwise. Among things defined, i.e. those which are *what* something is, some are like the snub, others like the concave, and the difference between these is that in the snub matter is implicit—for the snub is a concave *nose*— whereas concavity is independent of perceptible matter. So if every naturally existing thing is called [what it is] in the same way as the snub, as for instance nose, eye, face, flesh, 1026ᵃ bone, and animal as a whole, and leaf, root, bark, and plant as a whole—for the formulae of none of them are independent of change but always include matter—the manner in which we need to investigate and define what a thing is in the case of naturally existing things is plain.

1026ᵃ5. [It is plain] too that it falls to the student of nature 5 to study a certain kind of soul, namely any which is not independent of matter.

1026ᵃ6. All this makes it obvious, then, that the study of nature is theoretical. But mathematics is also theoretical. On the other hand, it is not immediately plain whether the objects of mathematics are changeless and separable, even though it is plain that some mathematics studies its objects *qua* changeless and *qua* separable. However, if there is any- 10 thing invariable and changeless and separable, it is obvious that acquaintance with it falls to a theoretical discipline, not, however, to the study of nature (which deals with certain changeable things) nor indeed to mathematics, but to some- thing prior to both. For the study of nature deals with things that are separable but not changeless, while certain parts of mathematics deal with things which, though changeless, are 15

doubtless not separable but as in matter. But the primary discipline will deal also with things separable and changeless.

1026ª16. All causes are necessarily invariable; but these are especially so, for they are the causes of the divinities obvious to us.

1026ª18. It follows that there must be three kinds of theoretical philosophy, mathematical, natural, and theo-
20 logical; for it is not hard to see that the divine is a constituent of a nature of such a kind, if of anything. Of these the most estimable ought to deal with the most estimable genus. The theoretical are to be preferred, then, among the other disciplines, and this among the theoretical.

1026ª23. For one might be perplexed as to whether the primary philosophy really is universal, or deals with a
25 particular genus and one particular nature. For not even mathematics is all of a piece in this respect, geometry and astronomy being concerned with a particular nature, while universal mathematics is common to all. If then there is no other substance apart from those constituted naturally, the discipline concerned with nature would be primary. But if
30 there is some changeless substance, this is prior and is primary philosophy, and universal in this way, because primary; and it would fall to it to study that which is *qua* thing-that-is, both what it is and the things that hold good of it *qua* thing-that-is.

CHAPTER 2

1026ª33. But that which *is*, when baldly so called, may be so called in several ways. One of them was that [which is] co-
35 incidentally, another that [which is] as true (and that which is not, that [which is] as falsehood). Apart from these there are the figures of predication, as for instance what a thing is, how qualified, of what quantity, where, when, and anything

else that signifies in this sense; again apart from all these, 1026ᵇ
that [which is] potentially and actually.

1026ᵇ2. Since that which is may be so called, then, in
several ways, it has first to be stated that there is no study
that deals with that [which is] coincidentally. A sign of this
is its neglect in every discipline, practical, productive, and 5
theoretical. For one who produces a house does not produce
all the things which coincide in the house that is coming to
be, for they are infinite. For there is nothing to prevent the
house he has produced being pleasing to some, harmful to
others, beneficial to others, and different from virtually
everything that is; but the discipline of housebuilding is not
productive of any of these things. In the same manner, a 10
geometer does not study what is in this way coincidental to
his figures, nor whether a triangle and a triangle possess-
ing two right angles are different. This result is reasonable,
for the coincidental is like a mere name. Hence Plato was
in a way not wrong to classify sophistic as dealing with 15
what is not. For the sophists' arguments are concerned, one
might almost say, more than anything with the coinci-
dental: whether artistic and literate, and artistic Coriscus
and Coriscus, are different or the same thing; and whether
everything that is, but not always, has come to be, so that if
someone, being artistic, has come to be literate, he has also,
being literate, [come to be] artistic—with all the other argu- 20
ments of that kind. For what is coincidental is obviously
close to what is not, as is plain also from arguments such as
this: that with things-that-are in another sense there is [a
process of] coming to be and destruction, but with things
[that are] coincidentally there is not.

1026ᵇ24. We ought nevertheless further to state, as far as
possible, the nature of the coincidental and the cause why it 25
is; for at the same time it will doubtless also be plain why
no discipline deals with it. Since, then, among the things-
that-are some are in the same state always and of necessity
(not necessity in the sense of compulsion but what we call so

from the impossibility of being otherwise), others not of
30 necessity or always but for the most part, this is the origin
and this the cause of the existence of the coincidental: for
what is neither always nor for the most part, that we assert
to be coincidental; as for instance if there is cold stormy
weather in the dog days, we assert that that is a coincidence,
35 but not if there is stifling heat, because the one is always or
for the most part, the other not; and it is a coincidence that
a man is pale, for that is neither always nor for the most part,
but he is not an animal coincidentally; and it is coincidental
1027ª that a housebuilder heals somebody, because it is character-
istic of a doctor, not a housebuilder, to do that, but it was a
coincidence that the housebuilder was a doctor; and a cook,
aiming to give pleasure, might produce health in some-
body, but not by virtue of his culinary [art]—hence it was
5 a coincidence, we assert, and in a way he produces it, but
baldly not.

1027ª5. For of some of them other things are sometimes the
things that produce them;¹ of others there is no definite art or
capacity. For of things that are or come to be coincidentally
the cause is also coincidentally.

1027ª8. It follows that since not everything is of necessity
and always a thing-that-is or a thing coming to be, most things
10 being so for the most part, it is necessary that there be that
which is coincidentally; as for instance someone pale is
neither always nor for the most part artistic, and when this
comes to be he will be so coincidentally—otherwise every-
thing will be of necessity.

1027ª13. It follows that the matter that is capable of
being otherwise than it is for the most part, is cause of the
coincidental.

15   1027ª15. We have to take *this* as our original [question]:
is there nothing which is neither always nor for the most part?

¹ Read ἄλλαι ἐνίοτε δυνάμεις εἰσὶν ποιητικαί.

or is this impossible? Consequently there are, apart from these, chance, i.e. coincidental, things.

1027ᵃ17. But does it hold good of some things to be for the most part but of none to be always? Or are some things invariable? These things will have to be investigated later.

1027ᵃ19. But it is obvious that no discipline deals with 20 the coincidental; for every discipline deals either with that [which is] always or with that [which is] for the most part. How else could one learn, or teach another? For a thing has to be defined either by that [which is] always or by that [which is] for the most part: as for instance that for the most part the fever-patient benefits from honey-water. But the exception—when he does not, as for instance at new moon— 25 cannot be stated; for that [which is] at new moon is also either always or for the most part. But the coincidental is an exception to that.

1027ᵃ26. We have stated, then, what the coincidental is and the cause why it is, and that no discipline deals with it.

CHAPTER 3

1027ᵃ29. It is obvious that there are origins and causes that are able to come to be and to be destroyed without [being in 30 process of] coming to be and being destroyed. For otherwise everything will be of necessity, if whatever is [in process of] coming to be and being destroyed necessarily has some cause non-coincidentally.

1027ᵃ32. Will *this* be or not? It will if *this* comes to be, but not otherwise; and that if something else does. And in this way it is plain that as time is continually subtracted from a 1027ᵇ limited period of time, we shall come to the present. Thus:

    this man will die by violence if he goes out,
    and that if he gets thirsty,
    and that if something else.

In this way we shall come to what holds good now, or to
something that has come to be. For instance:

> . . . if he gets thirsty,
> and that if he is eating something salty.

5 But this last either holds good or else does not; so of necessity
he will die or not die. Equally, if one jumps over to what has
come to be, the same argument applies; for that—I mean
what has come to be—is already a constituent of something.
Consequently, everything that will be will be of necessity,
e.g. that he who is living dies; for something has already
10 come to be, as for instance opposites in the same thing. But
whether by disease or violence is not yet [necessary], but
[will be] if *this* comes to be. It is consequently plain that it
runs as far as some origin, but this no further to anything
else; the [origin] of whatever may chance will therefore be
this, and nothing else is the cause of its coming to be.

1027^b14. But what kind of origin and what kind of cause
15 such a reduction leads to, whether to matter or to what a
thing is for or to what effects a change, needs to be investi-
gated fully.

CHAPTER 4

1027^b17. So much for that which *is* coincidentally; it has
been sufficiently distinguished. That which is as true and
that which is not as falsehood are concerned with composition
20 and division and, taken together, with the apportionment
of a contradiction. For truth has the affirmation in the case
of what is compounded and the denial in the case of what is
divided, while a falsehood has the contradictory of this
apportionment. (How we come to conceive things together
or separately is another question—by together and separ-
ately I mean not in succession but so as to make up some
one thing.)

1027^b25. For falsehood and truth are not in actual things 25 (the good, for example, being true and the bad *eo ipso* a falsehood), but in thought; though in the case of simples, i.e. what things are, not in thought either. What needs study with regard to that which is and is not in this way will have to be investigated later. But since the combination and the 30 division are in thought, not in actual things, and that which *is* in this way is a different thing-that-is from those which are in the fundamental way (for the thought connects or divides either what a thing is, or how qualified, or of what quantity or whatever else it may be), we may leave on one side that [which is] as coincidental and that which is as true. For the cause of the one is indefinite and of the other is a certain affection of thought, and both are concerned with the remain- 1028^a ing genus of thing-that-is and do not indicate the existence of any extra nature of thing-that-is.

1028^a2. So we may leave them aside, and investigate the causes and origins of that which is itself, *qua* thing-that-is.

1028^a4. (In our chapters distinguishing the number of ways 5 in which various things are called what they are, it was obvious that that which is may be so called in several ways.)

NOTES

GENERAL

References to Aristotle's writings are to the *Metaphysics* unless otherwise stated. The commentary in Sir David Ross's edition of the *Metaphysics* is referred to as 'Ross'.

Scholars designate books of the *Metaphysics* sometimes, as in these notes, by Greek letters, sometimes by numbers. Because the second book is called Little Alpha, Γ is book IV, Δ book V, E book VI.

Γ and E are epitomized in chapters 3–8 of book K, the authorship of which is disputed.

I use the formula 'x is essentially F' to mean 'if x exists, it follows that x is F'.

METAPHYSICS BOOK GAMMA

INTRODUCTORY NOTE

We are told that the fourteen books of *Metaphysics* were brought into their present arrangement by editors after Aristotle's death. Book A, which they set at the beginning, describes the aim of philosophy as the removal of surprise and perplexity by supplying "knowledge of original causes", and assesses the work of Aristotle's predecessors in that field. After the short book designated a, B outlines a set of "perplexities", most of which get examined, more or less directly, in the rest of the treatise. Γ thus stands, by the traditional ordering, at the start of Aristotle's main discussion of metaphysics; it announces its subject-matter in the first chapter; and its argument is hardly more dependent on what has preceded than on other parts of Aristotle's works.

The book falls into three parts: chapter 1 briefly states the nature of metaphysics; chapters 2 and 3 to $1005^{b}8$ defend its status as a single subject of inquiry and indicate its scope; the rest of the book from 3. $1005^{b}8$ consists of an examination of what are nowadays known as the principles of non-contradiction and excluded middle.

CHAPTER 1

This chapter should be read in conjunction with *E* 1, which outlines a classification of "philosophy", i.e. systematic knowledge.

A few preliminaries. The description which Aristotle gives of the "discipline" whose existence he asserts in his first sentence applies, and would evidently have been applied by him, to everything in his *Metaphysics*; it may therefore be taken to define 'metaphysics' (literally 'what follows physics'), the name coined for the treatise by Aristotle's editors. His own label is "primary philosophy" (e.g. *E* 1. 1026ᵃ30).

'Discipline' translates '*epistēmē*', traditionally rendered 'knowledge'; 'discipline' has been preferred in the present translation as possessing a plural ('science' is now too specialized), but the word and its cognates are translated 'knowledge', 'know', etc., at *Γ* 3. 1005ᵇ5, 4. 1008ᵇ27, 30, *Δ* 7. 1017ᵇ3, *Δ* 15.

'That which is' (sometimes 'what is') translates '*to on*', a phrase consisting of the neuter singular of the definite article followed by the present participle of the verb '*einai*', which means both 'to be' and 'to exist'. Parallel expressions with an adjective, e.g. 'the beautiful', occurred commonly in Greek without a following noun. 'The beautiful' could mean either 'the (mentioned) beautiful thing' or 'that which is beautiful'; and the latter, in addition to its natural meaning, was used even by non-philosophical writers to designate *beauty*. Perhaps by analogy with this last usage, Aristotle's '*to on*' has traditionally been translated 'being' (which in the singular must be a verbal noun—*das Sein*—not a substantive use of the participle—*das Seiende*); but although Greek adjectives could be used in the abstract way, it is doubtful whether participles could be. The standard Greek for 'being', like the German, is definite article plus infinitive, and at *Z* 1. 1028ᵃ20–5 Aristotle himself indicates a distinction between 'the to-walk' and 'the walking (thing)', i.e. that which walks. 'Thing-that-is' translates the participle '*on*' without article.

'*Qua*' is the literal Latin equivalent of Aristotle's '*hēi*', 'as' or 'in respect of being' ('in so far as' at *Γ* 4. 1006ᵃ14, 15). Its meaning is well illustrated at *Δ* 12. 1019ᵃ17–18. As an alternative to saying e.g. that a doctor heals '*qua* doctor', Aristotle often puts it that he heals 'in his own right', literally 'by himself' (see *Δ* 18); the connection is made explicit at *Posterior Analytics* I 4. 73ᵇ28–9, " 'in its own right' and '*qua* itself' are the same thing". 'In its own right' is opposed to 'coincidentally'. Clearly, the question whether someone heals *qua* doctor will not, while the question whether he heals in his own right or coincidentally will, depend on the description under which he is identified.

p. 217   "Coincidental": Aristotle's verb '*sumbebēkenai*' is the perfect of '*sumbainein*', literally 'come together', which in its other tenses he uses mostly

with the sense 'turn out', 'result', 'follow'. *Sumbebēkota* are things which might have been apart but have come together. The traditional translation 'accident' loses this etymology, lacks a corresponding verb, and obscures the Greek word's suggestion (denied though it is by Aristotle) that being-a-*sumbebēkos*-of is a symmetrical relation. I have therefore preferred 'coincidental' and 'coincide', even at the price of inventing the idiom '*B* coincides *in A*' (e.g. Γ 4. 1007ᵇ3). For other discussions of the word see the notes on Δ 30, E 2, Δ 6, Δ 7.

Does Aristotle conceive the subject-matter of metaphysics as compris- ing everything whatever, or only some among the things-that-are? This ancient dispute turns on the present chapter and E 1. It would, of course, be wrong to take the phrase "that which is" as designating a *single* item: although grammatically singular, it means the same as 'all the things-that-are'. The crucial question is whether "*qua* thing-that-is" restricts this phrase, or goes with the verb "studies". (1) (i) In E 1. 1026ª23–32 Aristotle appears to maintain, first, that his inquiry concerns only "changeless substance", and secondly that that substance constitutes "a particular genus and one particular nature"; and the author of K 7, which epitomizes E 1, describes the discipline as concerned with "that which is separable and changeless" (1064ª33). These two passages together have been taken to show, first, that metaphysics is concerned only with a restricted 'genus' of things-that-are and, secondly, that the phrase '*qua* thing-that-is' expresses the restriction. (ii) Some have thought that the phrase is so used at K 7. 1064ª28; it is also used to express a restriction, although a different one, at K 3. 1061ª8–10. (iii) Γ 1's description of metaphysics as seeking the origins and extreme causes which belong to "a particular nature" (or 'some nature') in its own right might similarly imply a restricted subject-matter. (2) On the other hand, (iv) E 1. 1026ª23–32 argues that such changeless substance, if it exists, is prior to the other kinds of substance; hence that its study is "primary philosophy, and universal in this way, because primary" (cf. Γ 3. 1005ª35). On this see notes on E 1. (v) In the present chapter Aristotle contrasts metaphysics with the special (literally 'in part') disciplines, which "select some part of" that which is "and study what is coincidental concerning that". (vi) It is, in any case, usually easier to take '*qua*'-phrases adverbially. To say, for example, that a doctor has visited some patient *qua* patient is not to say anything about the nature of the patient, but of the visit; and where no suitable verb is expressed, it is often possible to supply one (e.g. 1003ᵇ21, "to study all the forms [which hold good] of that which is *qua* thing-that-is"). Probably we should conclude that to say that metaphysics studies that which is *qua* thing-that-is is not to say anything about the nature of the things studied by metaphysics, but about the nature of the study.

If, according to Γ 1, metaphysics does study everything-that-is, what is the special nature of that study conveyed by the phrases "*qua* thing-that-is" and "not coincidentally"? Evidently, coincidental knowledge of everything-that-is would be exhibited by the universal polymath, who investigates truths about everything but not truths which are true about everything, who studies interdepartmentally but does not study interdepartmental questions. The utterly interdepartmental, or subject-neutral, questions are the province of metaphysics, which in this way manages to be comprehensive in subject-matter without comprehending all other disciplines.

There are three ways of taking the distinction in Aristotle's first sentence between "that which is *qua* thing-that-is" and "those things that hold good of this in its own right". (1) If the former expression designates the class of changeless and separable substances, Aristotle's first question might be to ask whether things of such a kind exist. This existential question is posed at *B* 2. 997ª34 in the form 'are there non-perceptible substances and, if so, of how many kinds are they?' and, in the same form, lengthily examined in *MN*. It is doubtful, however, whether that question can in practice be separated from inquiry as to 'what holds good of' the class of things so isolated. (2) The two expressions are equivalent, the latter being intended to explain the former. (3) Studying that which is *qua* thing-that-is has to be understood as inquiring what truths hold good of everything; "the things that hold good of this" are not truths, but all-pervasive *concepts* such as those listed at Γ 2. 1005ª11–18. Thus metaphysics seeks, first, truths that hold good of everything-that-is, and, secondly, truths that hold good of concepts that hold good of everything-that-is.

At *A* 3. 983ª25–6 Aristotle asserts that if we are properly to know a thing we must be conversant with its "primary cause" (or 'reason'; Greek had the same word for both). In tracing, through the remainder of that book, the course of his predecessors' treatment of causes, he acknowledges that the word 'cause' has more than one sense (*A* 3. 983ª26–32 and *Δ* 2): the earliest 'philosophers', for instance, were concerned with the question 'what are things made of?' Aristotle's own concerns are (i) to account for the *things*-that-are in terms of primary or basic things, which he identifies as substances (the "primary object" of metaphysics, Γ 2. 1003ᵇ16) and in particular separable and changeless substances (*E* 1. 1026ª16), and (ii) to give reasons or arguments in favour of the *truths* which are true about everything, and to lead these back to "primary" or "ultimate" reasons, which he also calls "elements" and "origins" (or principles). The notes to Γ 4. 1005ᵇ35 discuss whether he thinks of these principles as reasons which do not need, or which cannot get, further justification.

CHAPTER 2

1003ª33. Aristotle now considers an objection to metaphysical inquiry which may be stated as follows. The existence of a designating expression, e.g. a common noun, does not guarantee the existence of truths about just those things which the expression designates. It would be absurd, for instance, to suppose that there is a body of truths about spills, each of which says something true of both splinters and tumbles; the study of spills does not make a *single* system of knowledge, or discipline. If the expression 'thing-that-is' were similarly homonymous, there would be no study whose subject-matter comprised everything that is, but only a set of studies each dealing with some genus of thing-that-is. In the words of *K* 3. 1060ᵇ33–5, "If that which *is* is so called homonymously and in respect of nothing common, it is not under one discipline, for there is not one genus of such things".

There is evidence that this objection to the programme of metaphysics had been invented, or at least previously used, by Aristotle himself (*Eudemian Ethics* I 8. 1217ᵇ34). Whatever its provenance, Aristotle came to believe that it could be met. In this paragraph he argues that, although the verb 'be' does indeed have more than one sense (things-that-are are not "called what they are by virtue of one thing", 1003ᵇ12–13), nevertheless the different senses are connected (they are "called what they are with reference to one nature", 1003ᵇ13–14).

The first sentence concedes, in effect, that the verb 'be' has more than one sense. (In ª33 it is wrong to *translate* 'the words "thing-that-is" . . .', because, although the sentence begins with a neuter 'the', which is Aristotle's only device for indicating that he is speaking of words rather than things, such a 'the' does not, of course, always have that force. In many occurrences elsewhere of the common phrase 'is called in many ways' the context makes it clear that things, not words, are the subject; see *K* 3. 1060ᵇ31–4, Δ 1. 1012ᵇ34 and often in Δ.) In support of this thesis Aristotle cites in ᵇ6 the fact that we do not always have the same reason for describing something as a thing-that-is: it may be so called because it is a substance, or because it is an affection, and so on. He is not making the absurd claim that whenever two existential statements are asserted on different grounds they must be understood in different senses. The kind of ground he has in mind is that which gives an *account* or explanation of what it is for something to exist. He is right to imply that if one were asked, for instance, what it is for a man to exist and for the man's courage to exist, the answers would be of very different sorts. But is even that enough to justify the thesis that 'exist' has different senses in the two cases? In the absence of a clear criterion for differences of sense the question is not easy to answer; and even if it were answered, we should have to allow that Aristotle's own expression, here translated "in

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several ways", cannot be held to any rigid interpretation (see notes on *Δ* 7. 1017ª22). Nevertheless, it is fair to ask whether any interpretation under which it is true to say that 'exist' has many senses or uses or criteria would be strong enough to support the objector's contention that no discipline can have all existing things as its subject-matter. One such interpretation is suggested by an analogy between 'thing-that-is' and 'good' which Aristotle draws at *Nicomachean Ethics* I 6. 1096ª29–34, where he argues against Platonists that different kinds of knowledge or expertise are required to discover e.g. what is good in war and what is good in medicine: there could not be such a thing as a general knowledge of what is good which would short-cut these particular studies. But it is a mistake to suppose that this analogy raises a difficulty in the way of the inquiry examined in *Metaphysics Γ*. The question about existence which parallels the illicit Platonic question 'what is good?' is 'what exists?'; and, while it is true to say that there is no single discipline that includes answers to such questions as 'do electrons exist?' and 'does conscience exist?', metaphysics, according to Aristotle's conception of it, makes no claim to be such a discipline. It seems, then, that Aristotle was troubled by a needless anxiety. No danger lurks in his concession that the senses of 'be' are multiple, if that concession is based on the analogy between 'thing-that-is' and 'good'.

The multiple senses of the word 'healthy' (as in 'healthy exercise', 'healthy climate', 'healthy complexion', 'healthy person') are connected around the focus (ᵇ6 "origin") health. In the case of the word 'be' the focal concept is, according to Aristotle, *substance*. It is not appropriate to examine here Aristotle's views about substance, but the following points may be made. (i) He holds that a statement of the form '*x* is a thing-that-is' (in effect, '*x* exists') can always be analysed into the form '*x* is an *F*', e.g. '*x* is a quality'. (ii) He holds further that the expression replacing '*F*' will always imply some reference to a substance, e.g. if *x* is a quality, *x* is a quality of some substance (*Z* 1. 1028ª35–6). (iii) In several other places Aristotle tells us that the senses of 'thing-that-is' are "as many as the categories" (see e.g. *Δ* 7. 1017ª22), but of the senses given here only 'substance' and 'quality of a substance' introduce items elsewhere treated as categories. For other discussions of connected senses see *Δ* 6. 1016ᵇ6–11, *Z* 4. 1030ª32–ᵇ3 ('medical'), *Θ* 1. 1046ª4–11, *Nicomachean Ethics* I 6. 1096ª23–9 ('be'), 1096ᵇ26–9, *Eudemian Ethics* I 8. 1217ᵇ26–34 ('be'), VII 2. 1236ª16–32 ('medical'), 1236ᵇ17–27, *Topics* I 15. 106ᵇ29–107ª2 ('healthy'), *Categories* 6. 5ª38–ᵇ10, *De Generatione et Corruptione* I 6. 322ᵇ29–33.

A problem arises about the inclusion in ᵇ9–10 of denials among the things-that-are. Aristotle has in mind not negative statements (e.g. that tea is not alcoholic) but negative states of affairs (e.g. tea's not being alcoholic). For the distinction between denials and lacks (or privations)

see Γ 2. 1004ª10–16 and note. In the parenthesis, Aristotle asserts that the existence of denials explains why we can say that what is not *is* a thing that is not. Here lurks the false assumption that in a sentence of the form 'x is ϕ' the function of the copulative 'is' must always be to assert the *existence* of something. This misconception—tempting because of the dual use of the Greek '*einai*' as copulative and existential—had probably beguiled certain of Aristotle's predecessors into holding that 'x is ϕ' entails 'x exists'. Aristotle evidently realizes that the assumption cannot be correct, e.g. when 'ϕ' has the value 'non-existent'. Thus the form of words in his parenthesis is not intended to cover examples like 'tea is a thing-that-is-not-alcoholic', in which it would still be possible to explain the 'is' as asserting the existence of tea; it covers examples like 'tea is a thing-that-does-not-exist' or 'the alcoholic quality of tea is a thing-that-does-not-exist'. Aristotle's solution to the supposed difficulty is that 'x is non-existent' entails the existence, not of x, but of a more abstract entity, the denial of x's existence; in the first part of the sentence, therefore, "denials of a substance" (etc.) must be denials of the existence of some substance (etc.), not denials that the substance (etc.) has some property. So far the solution, though needless, is innocuous. But it cannot be combined with the thesis that in a 'denial of x' the status of the denial as a thing-that-is *depends* on the status of x as a thing-that-is; for x is asserted to be a thing-that-is-not. A thing's existence could not be prior in *that* way to the existence of the denial of its existence.

1003ᵇ11. The analogy with health does not seem adequate to Aristotle's purpose of vindicating the possibility of metaphysics. The doctor can tell what is healthy because he knows about health, and every healthy thing is somehow connected to health. But the metaphysician, even though he knows about substance, and though every existing thing is somehow connected to substance, cannot pronounce on the question 'What exists?' which is a job for many different specialists. Nor does he need to, for then his study of that which is would be "coincidental". Aristotle's programme for metaphysics is a coherent one, but this argument does not show it to be so.

1003ᵇ16. Aristotle now intimates for the first time in Γ that substances are prior to the other things-that-are. In Z 1 he will distinguish three ways in which substance is primary—in formula, knowledge, and time. Only the first is mentioned here: in the words of Z 1. 1028ª35–6, "in each thing's formula the formula of a substance is necessarily a constituent". To "have the principles [or origins] and causes of substances" is perhaps to know what substance is, the question discussed in ZH; perhaps to know which among the substances are basic and primary (see Γ 3. 1005ª35).

1003ᵇ19. The fact that things-that-are divide into several "forms" (*eidē*; the traditional translations are 'form' and 'species') does not debar them from being studied by a single discipline, thinks Aristotle, provided that the forms belong to one genus; but such a discipline is only generically single, that is, metaphysics has parts. Aristotle here treats things-that-are as constituting one genus (cf. *Γ* 2. 1004ᵇ22); elsewhere he repudiates that description (*B* 3.998ᵇ22–27, *Posterior Analytics* II 7.92ᵇ14). A different translation of the second sentence is possible: 'Hence it also falls to generically one discipline to study all the forms of that which is *qua* thing-that-is [sc. together], and [falls] to the forms [of that discipline to study severally] the forms [of that which is].'

1003ᵇ22. This paragraph, with which compare *I* 2. 1054ᵃ13–19, interrupts the run of argument. The preceding division of things-that-are into forms has evidently suggested to Aristotle or his editor the insertion of a section designed to show that things-that-are-one divide in the same way. The first sentence proposes tentatively that "that which *is* and that which is *one* are the same thing", and after argument the same claim is repeated in the third sentence. Its meaning is explained in the first sentence: 'existent' and 'one' have the same truth-conditions ("each follows from the other") even if they are not synonymous ("indicated by one formula"). Is this so? It might be objected that although e.g. 'Lysistrata is a woman' and 'Lysistrata is one woman' are true, 'Lysistrata is an existent woman' is false. Had Aristotle noticed the objection, he could plausibly have replied that if Lysistrata is one woman she must exist in some sense or manner—in a play—since the absolutely non-existent is uncountable (cf. W. V. Quine, 'On What There Is', 4).

The second sentence offers support for the first, in two stages: the addition of 'existent' ("that is") to a certain expression adds nothing to what it says; the same is true "in the case of that which is one". So much is clear, but the details of Aristotle's argument are obscure, partly because of corruption in the text. In ᵇ28 one MS. has 'he is one man and he is a man', others 'the man is both a man and one man'; but the example must be intended to show the redundancy of 'that is', which Jaeger's emendation, adopted in the translation, rightly inserts. Given that emendation, the word 'is' is reduplicated *within* the second sentence cited and also *between* the first sentence cited and the second; but (i) no reduplication of the former kind need occur if 'one' is substituted for 'that is', and (ii) the latter reduplication does nothing to *show* that the non-reduplicated *phrase* 'that is' is redundant. Ross's emendation differs from Jaeger's in omitting the two occurrences of 'he is'; the two occurrences of 'one' are also superfluous.

The fourth sentence is obscure. "Each thing's substance is . . . just what a certain kind of thing-that-is is": i.e. substances are identical with

the class of entities whose substances they are (see Γ 4. 1007^{a}20). "One non-coincidentally": the 'parts' of e.g. *pale Callias* are separable, but those of Callias' substance, viz. *two-footed* and *animal*, are indissolubly one; see $\varDelta$ 6. 1015^{b}16. The argument seems to be: substances are indissolubly one; substances are to be identified with certain things-that-are; so certain things-that-are are indissolubly one. It is not clear how these facts advance the argument of the paragraph as a whole.

The same and *similar* are not forms of that which is in the way that *man* is a form (species) of *animal*: only some animals are men, but everything that is, or is one, must be the same (as something) and similar (to something)—it is, in fact, just this feature, universal applicability, which makes the study of such concepts a part of metaphysics. Aristotle's meaning is indicated by $\varDelta$ 15. 1021^{a}9–12: 'equal', 'similar', and 'the same' are *defined* in terms of 'one'.

A book on contraries, which may be the 'Selection of Contraries', is mentioned in some ancient lists of Aristotle's writings (see introductory note on $\varDelta$); according to the commentary of Alexander of Aphrodisias (*floruit* A.D. 200) the selection was made from the second book of a lost work by Plato *On the Good*.

1004^{a}2. According to the alternative translation of 1003^{b}21–2, each of the "forms" into which that-which-is divides is studied by a "form" of metaphysics. The "parts of philosophy" mentioned here must be different, because the study of a particular kind of substance is not, or not always, metaphysics but may be e.g. zoology or geometry or ethics. Here, therefore, "philosophy" means 'knowledge'; cf. the "theoretical philosophies" of E 1. 1026^{a}18–19.

Although branches of mathematics may be arranged in a series, Aristotle does not explain how the same can be done for "philosophy" as a whole, because he fails to tell us how substances can be ordered in degrees of priority.

1004^{a}9. Aristotle now uses the thesis argued in the paragraph beginning 1003^{b}22—that metaphysics studies the concept of unity—in order to show that otherness and several related concepts also come within its scope. Two arguments are run together: (i) plurality is opposed to unity, and otherness etc. are forms of plurality; (ii) otherness etc. are opposed to sameness etc. That otherness etc. are forms of plurality is not stated, but can be inferred from considerations similar to those used in $\varDelta$ 15. 1021^{a}9 to show that sameness is a form of unity: e.g. x, y, z, etc. are other if and only if their substances are more than one. "Opposites fall to be studied by one discipline" because e.g. the study of the conditions under which x and y are not the same but other *is* the study of the conditions under which x and y are the same—"the one thing of which they are the denial or lack is studied in both cases".

As Alexander says, the difference between a denial and a lack (or privation) is indicated at *Prior Analytics* I 46. 51ᵇ25–34: "To be not-equal and not to be equal are not [the same] either; for one of them, that which is not-equal, has a certain subject, and this is the unequal, but the other has none. That is why not everything is equal or unequal, but everything is equal or not equal. . . . It is therefore obvious that 'it is not-good' is not the denial of 'it is good', [but] . . . must be some kind of affirmation." (The distinctions are indicated in Greek by word-order, not hyphens.) The reason why a thing may be neither equal nor not-equal is, as Alexander says, that both of these predicates, unlike 'not equal', imply 'capable of being equal'; and they imply 'capable of being equal' because they imply 'quantity'. Quantity is thus the "certain genus" (ª13) and the "certain nature" (ª16) that "comes in as the subject of which the lack is stated". See Δ 22, which makes it clear that in the statement of a lack this "subject" is not always actually mentioned: hence it might be better to translate ª12–13 'either we *mean* baldly that that thing does not hold good, or of a certain genus' (cf. Δ 9. 1018ª4).

"In the latter case, then, some differentia is added to the one, apart from what is there in the denial": if the MS. text of this sentence (retained in the translation, but marked corrupt by Jaeger and emended by Ross) may stand, its sense will be: '*x* is not one' expresses a denial, but '*x* is not one *F*', adding a "differentia", expresses a lack. Against this interpretation, (i) it is hard for 'differentia' to have the same sense as 'genus' in the preceding sentence, and (ii) 'not one *F*' and 'not one' fail to mark the distinction (if it exists) between what merely is not, and what is not capable of being, one. Several other interpretations, none of them easy, are discussed by Ross, whose own text omits "to the one". The MSS. have '*the* differentia', which perhaps needs emendation (with Ross) in order to secure the sense translated.

"The one is so called in several ways": see Δ 6.

1004ª25. The distinction and classification of "ways" or senses of 'be', 'one', 'the same', and other subject-neutral words is undertaken mainly in Δ and I.

1004ª31. Cf. *E* 2. 1026ᵇ2–24, *E* 1. 1026ª23–32. "And of substance they have no comprehension": they omit that part of metaphysics which studies the priority of substance over other things-that-are.

1004ᵇ17. 'Dialectic' can be the general name of the activity of debating face to face with an opponent, sometimes, as in Plato's dialogues, in the presence of an audience and sometimes apparently, as in the second part of Plato's *Parmenides*, according to set rules. Such debates might serve a number of different purposes: they might be (i) inquisitorial or deflationary, as in Socratic 'refutations', (ii) sporting contests, (iii) 'moots', to practise students in the art of debate, (iv) aimed at the

discovery of truth. Aristotle's word for (i) is *'peirastic'*, which I have trans-
lated "probes". (i), (ii), and (iv) are distinguished from dialectic at
De Sophisticis Elenchis 2. 165ᵃ38–ᵇ7, but (i) is identified with it in the
present passage and at *De Sophisticis Elenchis* 11. 171ᵇ9, 172ᵃ36. (ii), (iii),
and (iv) are all included under dialectic at *Topics* I 2. 101ᵃ25–8, (i) and
(iv) at *Topics* VIII 5. 159ᵃ25–37. Sophistic, otherwise eristic (*De Sophisticis
Elenchis* 11. 171ᵇ6–12), seems to cover (ii) and perhaps (iii), but is always
opposed to dialectic by Aristotle as containing "what are imagined to be
reasonings" and "what are imagined to be received opinions"—either in
the sense that the premisses and arguments of sophistic are always false
and fallacious (*E* 2. 1026ᵇ14–15), or that the sophistical purpose is
indifferent to their truth. Sophists are distinguished by their purpose
("the life chosen"), dialecticians by "the type of capacity", i.e. their
lack of ability to pursue the higher aim of truth (cf. *Rhetoric* I 1.
1355ᵇ17–21). Philosophy sticks, of course, to purpose (iv). Since Aris-
totle's comparison is designed to indicate the wide scope of metaphysics,
"philosophy" in *this* paragraph has to mean 'first philosophy'.

1004ᵇ27. Aristotle now offers a new argument to show that "it falls to
one discipline to study that which is *qua* thing-that-is":
(*a*)   all things either are or are composed out of contraries;
(*b*)   contraries originate in the one and plurality;
(*c*)   plurality and the one, being opposites, are studied by the same
          discipline;
(*d*)   since the senses of 'one', though many, are connected, what is one
          may be studied by a single discipline;
(*e*)   therefore all things may be studied by a single discipline.

(*b*), (*c*), and (*d*) are drawn from the paragraph beginning 1004ᵃ9.
Aristotle holds that, among things-that-are, substances and quantities, at
least, are not themselves contraries (*Categories* 5. 3ᵇ24–32 and 6. 5ᵇ11–
29); and at *Λ* 10. 1075ᵃ28–34 and *N* 1. 1087ᵃ29–ᵇ4 he criticizes the
opinion, held by "practically everyone" (ᵇ29) among his predecessors,
that the physical world is composed out of contraries. His argument here
is therefore apparently *ad hominem*.

The parenthesis at ᵃ8–11 it not easy. (A) *Nicomachean Ethics* I 6.
1096ᵃ23–8 asserts that the good cannot be "anything universally common
and one" on the ground that it "may be so called in as many ways as that
which *is*". Denying universality seems, then, to be equivalent to asserting
multiplicity of senses. (B) "Separable" cannot have Aristotle's technical
sense, according to which substances, but not e.g. affections or matter,
are separable (*Physics* I 2. 185ᵃ31, *De Generatione et Corruptione* I 10. 327ᵇ22,
II 1. 329ᵃ25): the meaning must be 'having unconnected senses'. Thus
the parenthesis repeats what was said in the previous sentence, and is
doubtless an intrusion. *y* and *z* are "related to one thing" *x* when there

are relations R and S such that Ryx and Szx; they "form a succession" when Ryz and Szx.

"Except on the basis of a hypothesis": Ross follows Alexander in interpreting 'but they proceed on the basis of an assumed answer (sc. to the question what is the contrary etc.)'; cf. Plato, *Republic* VI 510 cd.

1005ᵃ13. All the metaphysical concepts mentioned here and earlier in the chapter are treated in *Metaphysics $\varDelta$* or *I*.

CHAPTER 3

1005ᵃ19. This paragraph answers the question raised at B 2. 996ᵇ26–33: "On the other hand, with regard to the demonstrative principles it is disputable whether they fall to one discipline or more than one. By 'demonstrative' I mean the common opinions on the basis of which all men demonstrate; as for instance that it is necessary that everything be either asserted or denied, and that it is impossible simultaneously to be and not to be, and all other propositions of that kind. Does one discipline deal with these and with substance, or a different one? And if the latter, which ought to be identified with the discipline we are now seeking?" Aristotle indicates that the word 'axiom' (perhaps meaning 'requisite') is taken from mathematics, and the parallel passage at K 4. 1061ᵇ19 refers to the "mathematicians' principle", "common to all quantities", that "when equals are subtracted from equals equals remain" (cf. *Posterior Analytics* I 10. 76ᵃ41, ᵇ20, 11. 77ᵃ30), which is the third of Euclid's 'common notions' (see Heath, *Mathematics in Aristotle*, 201–3). In the remainder of $\varGamma$ Aristotle will discuss only the two absolutely "common" axioms mentioned in B, the principles of non-contradiction and excluded middle (henceforward PNC and PEM). To these two at least he might apply the definition of 'axiom' given at *Posterior Analytics* I 2. 72ᵃ14–18: they are "impossible to show" (cf. $\varGamma$ 4. 1006ᵃ5–12) and "it is necessary for anyone who is going to learn anything to have" them (cf. $\varGamma$ 3. 1005ᵇ16–17).

In B 2 Aristotle had raised two objections to including axioms under the same discipline as each other and as substance. (i) They are used in all disciplines and so cannot be the peculiar study of any one (996ᵇ33–997ᵃ2). Aristotle now answers that though "everyone uses them" they are not studied by everyone (ᵃ29–30): it is inappropriate for a geometer to investigate the credentials of PNC because it holds good of his subject-matter, lines, etc., "*qua* things-that-are", and so holds good of every thing-that-is, whether geometrical or not. (ii) The axioms cannot be studied by any discipline; for they do not need to be *defined* and, if they are to be *demonstrated* by a discipline, everything else demonstrated by means of them (and that is everything whatever) will fall under the same discipline, which is absurd (997ᵃ2–11). This objection is not answered

explicitly in *Γ*. Perhaps Aristotle abandoned its odd assumption that if *C* is demonstrated from *B* and *B* from *A*, *A*, *B*, and *C* all belong to the same field of study; or perhaps, as Ross suggests, the absurdity is thought not to arise if axioms are, strictly speaking, indemonstrable.

On the errors of the students of nature, or 'physicists', cf. *E* 1. 1025ᵇ18–21, 1026ᵃ27–30, *A* 6–10, Plato, *Sophist* 246–7; in one sense 'nature' covers everything (cf. *Δ* 4. 1015ᵃ11–13), in another not (*Δ* 4. 1015ᵃ13–15).

1005ᵇ2. The question which Aristotle dismisses as belonging to analytics (i.e. logic) may concern (1) axioms or (2) (Ross) propositions in general. In either case he seems to have in mind especially the fact that one cannot require every proposition to be demonstrated from another before it is accepted as true (see notes on *Γ* 4. 1005ᵇ35). Alexander suggests plausibly that this paragraph ought to follow the next. The argument would then be: metaphysics studies (e.g. tries to overcome objections to) the principles of reasoning; analytics shows that principles are necessary to reasoning. There is still some warrant for this division of labour.

1005ᵇ5. "What is characteristic of all substance": literally 'all substance as it naturally-is'; Aristotle uses a verb cognate with *'phusis'*. "Principles of trains of reasoning": literally 'syllogistical principles', but earlier writers, and Aristotle himself in the *Topics*, used *'sullogismos'* ('co-reckoning') and its cognates roughly as we use 'reasoning'. Even the definition in the *Prior Analytics* (I. 1 24ᵇ18–20) allows the word to apply to any deductive argument from more than one premiss. So it is best to avoid the now technical term 'syllogistic' (at *Δ* 18. 1022ᵃ22 the translation is 'calculation').

1005ᵇ8. Having answered the question set at the beginning of the chapter, Aristotle now leaves the examination of the existence and scope of metaphysics which has filled the first part of *Γ*. The rest of the book consists of an exercise in metaphysics: what are the (chief) axioms, and how can their truth be vindicated against challenge? PNC occupies him to the end of chapter 6; PEM is much more briefly treated in *Γ* 7.

He begins by asserting that the metaphysician must be able "to state the firmest principles of everything", and assumes that among these is a principle "firmest of all". In the second sentence—let us refer to it as (*a*)—the Greek might mean either

(*a*1)   if *x* is the firmest principle of all, error with regard to *x* is impossible

or

(*a*2)   if error with regard to *x* is impossible, *x* is the firmest principle of all

('*x*' being universally quantified). Two things support (*a*2). (i) 1005ᵇ22–34 will argue that PNC is the firmest principle of all on the ground that its

contradictory is believed by no one, i.e. error with regard to it is impossible. This proof is validated by (*a*2) but not by (*a*1). (ii) The proof of (*a*) itself is by means of two lemmata stated in the third sentence:

(*b*)   if error with regard to *x* is impossible, *x* is most intelligible;

(*c*)   if error with regard to *x* is impossible, *x* is non-hypothetical.

(The final sentence of the paragraph shows that in ᵇ13 "of that kind" means 'with regard to which error is impossible'.) These lemmata will serve in an argument for (*a*2) but not for (*a*1).

In the rest of the third sentence the two further premisses which connect (*b*) and (*c*) with (*a*) are not stated, but arguments in support of (*b*) and (*c*) are offered successively. (*b*) is supported by

(*d*)   anyone who does not understand *x* is liable to error with regard to *x*.

(*c*) is to be taken as supported by

(*e*)   if error with regard to *x* is impossible, *x* is understood by anyone who understands anything;

(*f*)   if the latter, *x* is necessarily in that person's equipment;

(*g*)   if the latter, *x* is not a hypothesis.

(*e*) is not stated; it appears to assume that where error is impossible so are ignorance and confusion. In (*f*) 'necessarily' has to govern the consequent (cf. *Γ* 4. 1006ᵇ28–30, 5. 1010ᵇ25), for it is needed in the antecedent of (*g*). 'Intelligible' translates *'gnōrimos'* ('certain' at *Γ* 4. 1008ᵃ17); 'understand' and 'have understanding' translate the cognate verb *'gnōrizein'*, the basic meaning of which is 'make intelligible' (*Γ* 2. 1004ᵃ20, 23, ᵇ26, 3. 1005ᵃ28)—to oneself or others; Aristotle's statement of (*g*) substitutes a synonymous verb *'xunienai'* ('apprehend').

For 'hypothesis' see *Posterior Analytics* I 10. 76ᵇ23–34: a hypothesis is provable but accepted without proof; a postulate is disbelieved but assumed for the sake of argument; both are different from a principle (= axiom) which "is necessarily so on its own account and is necessarily believed".

1005ᵇ18. "Dialectical difficulties": Plato remarks that a spinning top can be moving and not moving in different parts (the rim moving, the axis at rest, *Republic* 436 de), and accordingly formulates a principle of contrariety thus: "the same thing will not be willing simultaneously to do or suffer contraries at least in the same respect and relative to the same thing" (436 b 8–9). Compare *De Sophisticis Elenchis* 5. 167ᵃ23–7, where Aristotle proposes the guarding formula "of one and the same thing, actual thing not name. . . . in the same respect, relative to the same thing, in the same way and in the same period of time"; also *De Interpretatione* 6. 17ᵃ33–7. The present formulation of PNC covers only unquantified

subject–predicate propositions and does not rule out the joint truth of complex propositions such as 'he is either upstairs or downstairs or in my lady's chamber' and 'he is neither upstairs nor downstairs nor in my lady's chamber'; for which we need the more general modern formula 'it is impossible that p and not-p'. Sometimes, indeed (e.g. B 2. 996^{b}30, Γ 4. 1006^{a}1), Aristotle employs the phrase "for the same thing to be and not to be", in which 'to be' might mean 'to be the case' (cf. Γ 5. 1009^{a}7); but even that phrase may be elliptical for the schema 'to be so-and-so', where 'so-and-so' marks the place for a predicate-expression (cf. 1006^{b}18–20). Other formulations of the principle are quite freely used in some of the arguments which follow (e.g. 1005^{b}29 which introduces the word 'contradiction', 1005^{b}23–4 where the modal operator is omitted, Γ 4. 1007^{b}18–19, 1008^{a}36).

1005^{b}22. Aristotle now seeks to show that PNC "fits the specification" of firmest principle by being a principle about which error is impossible. The opinion he cites about Heraclitus (not relied on by modern scholars) is not

(a) $\exists x \exists F$ (Heraclitus said that it is possible that some people believe that Fx & $-Fx$)

but

(b) $\exists x \exists F$ (Heraclitus said that Fx & $-Fx$).
Aristotle points out that we cannot infer from (b) to

(c) $\exists x \exists F$ (Heraclitus believed that Fx & $-Fx$)

nor therefore to

(d) $\exists x \exists F$ (it is possible that some people believe that Fx & $-Fx$) which is entailed by (c). He then gives a proof of the contradictory of (d), as follows.

(e)   it is impossible for contraries to hold good of the same thing (^{b}26–8)

(f) $\forall x \forall F$ (belief that Fx is contrary to belief that not-Fx) (^{b}28–9)

(g)   therefore $\forall x \forall F$ (it is impossible for anyone to believe that Fx and believe that not-Fx) (^{b}29–30).

Γ 6. 1011^{b}15–22 will argue that (e), here introduced with an 'if', is entailed by PNC itself; but Aristotle nowhere defends the other and more dubious premiss (f) (*De Interpretatione* 14. 23^{a}32–^{b}7 seems irrelevant). The rest of the proof is not explicit: from (g) Aristotle seems to infer, plausibly,

(h) $\forall x \forall F$ (it is impossible for anyone to believe that Fx & $-Fx$) which contradicts (d); thence, fallaciously ignoring the intensionality of belief,

(i)   it is impossible for anyone to believe that not-PNC (where 'PNC' abbreviates '$\forall x \forall F - (Fx$ & $-Fx)$'); and so, validly given 'necessarily PNC', to

(*j*)   it is impossible that (PNC and someone believes that not-PNC) and also impossible that (not-PNC and someone believes that PNC), i.e. error about PNC is impossible. (Aristotle eschews the stronger claim, implied by *Posterior Analytics* I 10. 76ᵇ24, that PNC must be believed.) *Γ* 4. 1006ª4, "by means of this", shows that he is aware that the whole proof depends on PNC as a premiss. He does not make clear whether (*h*) rules out the possibility of believing even veiled contradictions such as 'Balaam rode on an ass but not on a donkey', 'Menelaus was king of Sparta but not of Lacedaemon'. On the paragraph see J. Barnes, *Philosophical Quarterly*, October 1969.

In ᵇ32 "this opinion" is PNC. Does Aristotle mean that every argument relies on PNC (cf. 1005ª23–4), or merely that no argument questions it? Only the latter is supported or explained by the thesis that it cannot be disbelieved.

CHAPTER 4

The notes divide this chapter into an introduction and seven arguments (Ross runs 1006ª28–1007ᵇ18 together as the first, and separates 1008ª2–7 as the third). The arguments are variable in quality and sometimes draw on the same material. Though there are some cross-references, it is possible that they were collected and composed over a long period of time. Part of Aristotle's purpose may have been to encourage his pupils to compare and grade them.

Γ 4: *Introduction* (1005ᵇ35–1006ª28)

1005ᵇ35. Both (A) the conclusion and (B) the argument of this paragraph are unclear. (A) The implication of 1006ª11 is that what precedes has shown that demonstration of PNC is *impossible*, unless "in the manner of a refutation"; and the author of *K* 5. 1062ª2–4 says explicitly "on such matters there is no such thing as demonstration, speaking baldly" (because no "more trustworthy principle" can be found from which to demonstrate it). But in the present paragraph itself we are told that "a demonstration ought not to be sought", which may convey that demonstration of PNC is merely *needless*.

(B) Aristotle's argument is from two premisses: (*a*) "it is impossible that there should be demonstration of everything"; (*b*) if anything ought to be left undemonstrated, PNC ought. Two criticisms may be brought against the argument. Firstly, (*b*) is in need of support; perhaps Aristotle sees the rest of the chapter as providing it. Secondly, (*a*) is ambiguous between

(*a*1)   some things cannot be demonstrated

and

(*a*2)   it cannot be that everything is demonstrated.

Aristotle may have confused these (see e.g. his treatment of 'all the air is

breathable' at *Topics* V 5. 135ᵃ32–ᵇ1), and only (*a1*) could support the stronger version of his conclusion. But even (*a2*) seems strong enough to justify

(*c*)   in any given argument, it ought to be that some things are left undemonstrated,

which, together with (*b*), entails

(*d*)   PNC ought always to be left undemonstrated.

(*a2*)—but not (*a1*)—is proved at greater length in I 3 of the *Posterior Analytics*, to which perhaps those who "lack training" are to be referred; cf. *Γ* 3. 1005ᵇ3–4.

1006ᵃ11. In this cryptic paragraph Aristotle recommends a strategy against the opponent of PNC. What, first, does he mean by "demonstrating in the manner of a refutation"? (1) Any demonstration of PNC would be a refutation of its contradictory, as the opponent is at this stage assumed to admit (1006ᵃ5–6). Hence the special method which Aristotle recommends is not merely 'demonstrating by refuting'. (2) *K* 5 does not mention refuting, but calls for demonstration *ad hominem* ("in response to this person", 1062ᵃ3). If '*ad hominem*' means 'from a premiss accepted only by your opponent', some of the later arguments in *Γ* follow that procedure, but nothing else in this paragraph suggests it. (3) *K* 5 prescribes, again without the authority of *Γ* 4, "finding something of such a kind that it shall be the same . . . but not be thought to be the same" as PNC (1062ᵃ6–9). (4) In demonstration, says Aristotle in ᵃ16–17, the demonstrator "might be thought to beg the original question", but in refutation "someone else is cause of such a thing". According to the definition at *Prior Analytics* II 16. 64ᵇ34–8 it is not possible to beg self-evident propositions, but Aristotle's opponent, denying that PNC is self-evident, might accuse him of demonstrating from a premiss which only PNC itself would give one any reason to accept ("of a nature to be shown by means of" PNC, 64ᵇ40). To avoid the accusation "someone else", sc. the opponent himself, must choose the premiss—which is a feature of refutations also. (If this is the procedure recommended by Aristotle, it exploits the fact that every proposition—at least every one which the opponent is likely to choose—implies PNC.)

Whether or not the fourth sentence (on which our MSS. agree, although Alexander knew some variants) further elucidates "demonstrating in the manner of a refutation", it certainly enjoins more than merely to give the opponent choice of opening premiss. The syntax leaves it doubtful whether he is required (1) to signify something (cf. *K* 5. 1062ᵃ11–14, make himself understood) or (2) to state something to (i.e. that something does) signify. If (1), we might take it that the requirement is to be satisfied either (1*a*) by uttering a single word, e.g. 'man',

pp. 203–4

or (1b) by uttering such a word in answer to a question such as 'Is Callias a man?' The difficulty with (1a) is that 'man', not being a proposition, cannot form the premiss of an argument (see also ᵃ27 "has agreed that something is true"); nor did Aristotle believe that 'man' implies 'there is a man' (*De Interpretatione* 4. 16ᵇ28–30). On the other hand, it is possible that Aristotle took the utterance of 'man' to imply the proposition ' "man" has a significance'. If, by (1b), the opponent is to say 'man' in answer to a question, the question must be other than one which "asks him to state something either to be or not to be". At *Topics* I 4. 101ᵇ29–33 Aristotle distinguishes the form 'is it the case that p or not?' (a "problem") from the form 'is it the case that p?' (a "premiss"). Conceivably his intention here is to prescribe premiss-questions as against problem-questions, perhaps on the ground that the latter exclude the double answer 'p and not-p'. But at 1007ᵃ7–14, where he does imagine the opponent to have been asked a question to which 'man' would be an answer, that question is of the problem type and the double answer to it is explicitly excluded. (2) Two later passages, 1006ᵇ11–13 and Γ 8. 1012ᵇ5–8, require the opponent to say that some word has significance, and both refer back, apparently to this sentence.

The demand in the first sentence that the opponent shall "say something" may be less innocent than it seems. For Aristotle's subsequent gloss on its contradictory is "has a statement of nothing", which, like the preceding phrase "look for a statement", employs the noun '*logos*' (see glossary); and while in the first of these occurrences *logos* is speech or statement, in the second 'has a *logos* of something' can readily mean 'has a definition' (cf. Δ 29. 1024ᵇ26–1025ᵃ1, but contrast Γ 2. 1004ᵃ33 where the same phrase is translated 'discuss'). Furthermore, at ᵃ24–5 it is concluded that if the opponent does what is asked of him "there will already be something definite". So perhaps Aristotle, playing on this double meaning of '*logos*', requires the opponent not only to state that e.g. 'man' has a significance and therefore a definition, but also to state the definition; cf. Γ 7. 1012ᵃ21–4, and Γ 8. 1012ᵇ5–8 where, however, the definition is of 'true' and 'false'.

"But the cause . . .", ᵃ25–6: cause of what? If Aristotle means that the opponent is responsible for the "original step", in that he says something, nothing is added by the words "eliminating statement". Probably the meaning is that the opponent is responsible for his own downfall (cf. ᵃ17–18); for he engages in discourse, but says things which make discourse impossible (cf. *Sophist* 252 bc).

At the end of the final sentence some MSS. add, duplicating ᵃ30, "so that it could not be that everything was so-and-so and not so-and-so"; others omit the whole sentence, which may therefore be spurious, or a later addition by Aristotle, or misplaced. If it belongs here, its force may be: if something is true, something is false; so not everything is true.

Γ 4: *1st Argument* (1006ᵃ28–31)

1006ᵃ28. This sentence has been given various interpretations. (1) 'The name chosen signifies e.g. "(to be) man" or "not (to be) man" but never both ["or" exclusive]; so it is impossible to be both man and not man.' The premiss is feeble and the argument unconvincing. (2) 'One who says that *x* is e.g. a man signifies that *x* is, or is not, something in particular; so *x* is not everything whatever (whatever you like).' There is a moderately good parallel for this interpretation of 'so-and-so and not so-and-so' at *Theaetetus* 183 a, but the sense is strained and the conclusion not obviously relevant. (3) 'The name chosen signifies being or not being something; and that is the starting-point from which we shall proceed to prove PNC.' This gives a weak sense to "so that", and ignores the implication of "again" in 1006ᵃ31 that ᵃ28–31 offers a separate argument. (4) 'The name chosen signifies to be or not to be something and does not also not signify that; so at least one predicate, "signify", does not share its contradictory with any of its subjects.' This, Alexander's interpretation (cf., for what it is worth, *K* 5. 1062ᵃ17–18), attempts to meet the difficulty that all the others require 'anything' rather than 'everything' in the conclusion. But that is all that commends it, and in any case a strict reading of the conclusion gives 'at least one subject does not have any contradictory predicates'. (5) Alexander also construes the premiss differently: 'the name "to be" or "not to be" signifies this particular thing'. This does not seem to help his own interpretation or to suggest another; and it is inconsistent with *De Interpretatione* 3. 16ᵇ22–5.

Γ 4: *2nd Argument, Part I* (1006ᵃ31–ᵇ34)

Before discussing the text of this extraordinarily mystifying argument, it will be useful to distinguish in general terms the two types of interpretation it has received. According to the first type, Part I of the argument (down to 1006ᵇ34) seeks to show that no predicate whatever may be predicated jointly with its contradictory; Part III (1007ᵃ20–ᵇ18) argues independently that the same must be true of necessary or essential predicates in particular. According to the second type, both Parts have the latter, or a similarly limited, aim. The major attraction of type 1 interpretations is that Part I does not represent itself as a merely partial defence of PNC and, although couched in terms of the word 'man', gives no indication that the choice of an essential predicate-word is crucial. On the other hand, type 2 interpretations claim to give a better sense to 1006ᵇ13–14 and to explain how ᵇ13–28 connects with ᵇ28–34; but there is some doubt about both these claims. Even if type 2 is right, there is no reason to conclude that Aristotle accepted only the restricted version of PNC; indeed he often states it without any such restriction.

pp. 205-6   **1006ᵃ31.** 'In the same sense' does not occur among the "customary specifications" listed in the statement of PNC at Γ 3. 1005ᵇ19-20 (contrast *De Sophisticis Elenchis* 5. 167ᵃ4, *De Interpretatione* 6. 17ᵃ35). Yet Aristotle doubtless knew the child's riddle alluded to at *Republic* V 479 c: a man who was not a man (a eunuch) threw a stone that was not a stone (a pumice) at a bird that was not a bird (a bat) on a twig that was not a twig (a reed). In this paragraph he explains and defends the assumption that in 'the same thing cannot be a man and not a man' 'man' has just one sense (or explication, see below). Although this seems to be the force of "signify one thing" (an expression not used elsewhere by Aristotle), it must be admitted that in other places 'signify' (*'sēmainein'*) often means something more like 'denote': e.g. if the word 'cloak' is used as an abbreviation for 'the horse that is a man' it signifies nothing (*De Interpretatione* 8. 18ᵃ25, but contrast 1. 16ᵃ16-18 and *Posterior Analytics* II 7. 92ᵇ5-8); 'every' (*De Interpretatione* 10. 20ᵃ13), and perhaps 'is' (ib. 3. 16ᵇ24), do not signify but "consignify"; "connectives" such as particles and prepositions are "non-significant" (*Poetics* 20. 1456ᵇ38-1457ᵃ10). In choosing to express his assumption of univocity in this unusual and ambiguous way Aristotle is no doubt influenced by the fact that the word 'signify' has appeared in the argument already; otherwise he might have written 'let man be said in one way' or 'let man be synonymous' (*Categories* 1. 1ᵃ6-12).

Lacking inverted commas, Aristotle refers to the name 'man', a masculine, by prefixing the neuter form of 'the'; cf. Δ 7. 1017ᵃ31, literally 'the is signifies . . .'. The definition 'two-footed animal', though repeated elsewhere, is not in the present argument required to be correct or complete. Aristotle's explanation of 'signify one thing' is paraphrased to the following effect by Alexander and Ross: 'if (*a*) [what 'man' signifies] is that [viz. two-footed animal], ['man' signifies one thing if and only if] (*b*) in the case of any man, (*c*) to be a man will be that [viz. to be a two-footed animal]'. (*a*) demands, *pace* Ross, the textual variant which omits the word 'man'; the received text must mean either 'if that [word] is "man" ' (understanding a neuter article before 'man'), or 'if that [one thing which 'man' signifies] is a man', or 'if that [viz. a two-footed animal] is a man'. (*b*) emphasizes that 'two-footed animal' must apply to everything to which 'man' applies.

"Provided that these were definite": sc. "a definite number" (ᵇ4) as against "infinitely many" (ᵇ6). Aristotle's argument does not in fact require that the significations of a name be finitely many, but only that there be unit significations, like points on a line, not themselves further divisible. This is shown by the second sentence after the parenthesis, which has to mean not that *names* signify just one thing (a doctrine absurd in itself and contradicted by ᵃ34) but, as indicated by the reference to conceiving, that a *speaker* must signify just one thing, sc. each time he utters

a single name significantly. Thus the argument is: objects of thought divide into units which must be pairable with names (^{b}10–11); therefore, if there is speech or thought, names are significant (^{b}8–9); if names are significant, each use of a name must have unit signification (^{b}7); if each use has unit signification, each name must have significations that divide into units (^{b}5–7). In claiming that every utterance of a name signifies just one thing, Aristotle overlooks the phenomenon of *double entendre*. He does not imply that what the name signifies must be a simple entity; cf. *De Interpretatione* 8. 18ᵃ18–27, *Z* 4. 1029ᵇ27–8.

"There would be no statement": or, perhaps, 'formula'.

1006ᵇ13. The opening clause of this paragraph is the first major crux in the argument. Three interpretations seem possible. The first depends on construing '*ouk estai*' at the beginning of the second sentence, literally (as in this translation) 'will not be', in the equally common sense 'will not be possible'. The effect of this is to make the second sentence anticipate the conclusion of Part I, which will be stated at 1006ᵇ33–4 in the next paragraph. But the second sentence begins not with a 'therefore' but an 'and', as if explaining the opening clause of the first sentence. This suggests that that clause also anticipates the conclusion of the argument of Part I, and means

(1)   'to be a man' cannot be [sc. truly] predicated of anything of which 'not to be a man' is [truly] predicated,

i.e. 'is a man' and 'is not a man' have incompatible meanings. However, (1) gives to 'signify *x*' the sense about to be reserved for 'signify about *x*'. In face of this it seems impossible to sustain (1), and consequently necessary to construe the second sentence as in the translation: 'it [sc. to be a man] will not be both to be and not to be the same thing . . .'. In place of (1), the final sentence of the paragraph suggests a second interpretation of the opening clause:

(2)   'to be a man' cannot mean just what 'not to be a man' means,

i.e. 'is a man' and 'is not a man' have different meanings. But why need that be "shown" (^{b}28)? If 'is a man' and 'is not a man' had the *same* meaning, the sentence 'Callias is a man and not a man' would not state a contradiction, and the opponent in uttering it would say nothing more controversial than that Callias is a man and a man. This is the argument presented by Aristotle himself in the third sentence, when he points out that in order to express the claim that the same thing can "simultaneously be and not be a man . . . in actual fact" the opponent must avoid speaking "homonymously". It is at this point that champions of type 2

interpretations come in. Faced with these objections to (1) and (2), they propose that "signify" has a sense distinct from both 'be predicated of' and 'mean', viz. 'be explicated by':

(3)   'to be a man' cannot be explicated by just that which explicates 'not to be a man'.

The independence of this sense requires explication to be different from definition by synonym, and G. E. M. Anscombe has suggested in illustration of the difference that 'is large' and 'is not large' might both (in different contexts) be explicated by 'is two feet long'. As the illustration shows, sense (3) calls for a corresponding adjustment in the sense of 'signify one thing'; for 'large' has perhaps only one *sense*, but cannot be substituted for 'man' in ᵇ13. According to (3), the argument of the first three sentences will go as follows: 'is a man' and 'is not a man' cannot have the same explication . . . i.e. to be a man cannot be [omitting 'possible'] both that and not to be a man, except in the un-interesting case in which 'man' and 'not-man' are used as synonyms. This part of the type 2 interpretation is, as will be seen, independent of the rest.

Some brief remarks follow about the remainder of the first sentence. It is doubtful whether 'signify about' occurs elsewhere in Aristotle, but similar expressions (e.g. *Categories* 2. 1ᵃ20 ff., *Γ* 6. 1011ᵇ16) and the example in the parenthesis show that it means 'be truly predicated of'. 'If "man" signifies not only . . .': if this clause is to be elucidated by the following parenthesis, its force must be: it is not enough that 'man' should have two or more senses (explications) all of which are, on some occasions, co-predicable of the same subject; rather all the senses (explications) of 'man', as understood, must be the same sense (explication). In the parenthesis "all" may mean 'all these', viz. pale things and artistic things and men (as at *B* 4. 999ᵇ20 and *Δ* 26. 1023ᵇ32, but not at 1007ᵃ21, or 1007ᵃ6 which refers back to this passage); otherwise there is a suppressed assumption that all predicates are connected by a chain of co-predicability. "Because synonymous": because all will have name and formula in common (*Categories* 1. 1ᵃ6–7); they will also be many-named, i.e. nameable by distinct but (in our sense) synonymous names, but there is no need to follow Alexander in importing this otherwise un-attested sense of '*sunōnumos*'.

It is hard to see Aristotle's motive for introducing the distinction be-tween signifying and signifying about in these lines. It seems that Alexan-der took him to be replying to the following argument: a man is pale; to be pale is not the same as to be a man; therefore a man is not a man. The reply goes: the argument is valid only if its first premiss means 'a man is just what something pale is' (cf. 1007ᵃ33); but that is true only if

'man' and 'pale' signify the same; but that is true only if 'signify the same' is equivalent to 'signify about the same'. However, Aristotle is attempting a proof of PNC, not the demolition of a counterproof.

The baffling section from ^{b}22 to ^{b}28 introduces the expression 'to be a not-man', distinguished from 'not to be a man' by word-order in the Greek. There are two reasons for thinking that nothing is meant to turn on the difference of these two, although Aristotle emphasizes it later (1007^{a}24, 28–9). (i) ^{b}28 ('to be a man' and 'not-man' signify something different) seems to refer back to ^{b}13–14 ('to be a man' cannot signify just what 'not to be a man' signifies). (ii) Aristotle maintains elsewhere that 'to be a man' and 'not to be a man' are contradictories, while 'to be a man' and 'to be a not-man' are only contraries and will be false together when predicated of something non-existent or of something incapable of being a man (*Prior Analytics* I 46. 51^{b}36–52^{a}14, *De Interpretatione* 10. 19^{b}19–30). Thus, though it may be that 'it is not possible that x is F and not-F' does not demonstrate 'it is not possible that x is and is not F' nevertheless one who conceded the former without the latter would be in an intolerably strange position which can safely be ignored.

^{b}22–8 operates with five propositions:

(*a*)   'man' and 'not-man' do not signify different things;

(*b*)   'to be a man' and 'not to be a man' do not signify different things;

(*c*)   to be a man is to be a not-man;

(*d*)   to be a man and to be a not-man are one thing;

(*e*)   to be a man and to be a not-man have one formula.

At the beginning Aristotle says that (*a*) implies (*b*); at the end he says that (*b*) had been refuted. This makes it fairly certain that the section rejects (*a*) on the basis of the rejection of (*b*), but it remains unclear, first, what is the purpose of rejecting (*a*) and, secondly, how the other propositions fit in. We can say at least that the purpose of rejecting (*a*) *ought* not to be to refute the objection in ^{b}18–22, against which the negation of (*b*) cannot properly be assumed. As to the other propositions, Ross interprets the argument thus: (*a*) implies (*b*), which, since (*e*) is equivalent to (*d*), implies (*c*); and (*d*) implies (*b*). But this makes (*c*), (*d*), and (*e*) entirely superfluous. More probably (*d*) is meant to show how we are to get from (*a*) to (*b*), which (*d*) implies, not how we are to get from (*b*) to (*c*); and if so, the "for" in ^{b}25 must explain the conditional in ^{b}22–4, not the "so that" clause which it immediately follows. So we have: because (*e*) is equivalent to (*d*) (^{b}25–7) and (*d*) implies (*b*) (^{b}27–8), (*a*) implies (*b*) (^{b}22–4). It is tempting to complete the argument by taking (*c*) as the means of getting from (*a*) to (*e*), but that could be done only by exchanging the connectives in "*so that* to be a man will be to be a not-man; *for* they will be one thing".

1006^b28. This note raises four questions about the final section of Part I: (A) what is the scope of its modal words? (B) can it be made a valid piece of reasoning? (C) why should the opponent accept it? (D) how does it make use of what has preceded?

(A) Does 'necessary' in the first sentence govern the whole conditional or only its consequent? If the first, the argument will go (using '$\square$' = 'it is necessary that', '$\lozenge$' = 'it is possible that', 'M' = 'is a man', 'T' = 'is a two-footed animal')

(a) $\square \; \forall x \, (Mx \to Tx)$
(b) $-\lozenge \; \exists x \, (Mx \; \& \; -Tx)$
(c) $-\lozenge \; \exists x \, (Mx \; \& \; -Mx)$

If the second, there is a suppressed step:

(a) $\forall x \, (Mx \to \square \; Tx)$
(b) $\forall x \, (Mx \to -\lozenge - Tx)$
$[(c)$ $\forall x \, (Mx \to -\lozenge - Mx)]$
(d) $-\lozenge \; \exists x \, (Mx \; \& \; -Mx)$

In the second version the step from (c) to (d) is valid in any normal modal system, provided that '$\to$' is read as a sign of strict implication; but in that case propositions having the form of (a) in the second version will be true only if 'Mx' expresses an essential predication. In that version, therefore, 'man' cannot be taken as a stand-in for any predicate whatever, and the conclusion does not justify an unqualified assertion of PNC. For other reasons too the second version is less likely: Aristotle's word order, though not decisive (cf. *Prior Analytics* I 11. 31^b7–8) argues against it; so do the words "at that time" (^b31, omitted by one good MS.) and "simultaneously" (^b33), which it renders at best superfluous.

(B) In neither version does (b) seem to demonstrate (c), for not all two-footed animals are men. We must remember, however (and Aristotle reminds us), that the role of 'two-footed animal' is to indicate the one thing that 'man' is being taken to signify; and no fallacy is committed if 'T' means 'is a man in the sense "two-footed animal"'.

(C) In defending the step from (a) to (b) Aristotle says that 'cannot not' is what 'must' signifies: could he not have avoided the whole rigmarole by pointing out that 'is not not' is what 'is' signifies? Why should the opponent not reject the former, as he would the latter?

(D) (a) refers back to the assumption of 1006^a31 that 'man' signifies two-footed animal; the step from (b) to (c) relies on the assumption of 1006^a34–^b13 that that is all 'man' signifies; but what is the bearing on this paragraph of 1006^b13–28? The rest of this note sinks that question into a survey of the two types of interpretation given to the argument as a whole. Those who favour type 1 must answer the question in one of two ways: either, the conclusion drawn in ^b33–4 was anticipated at 1006^b13 or at least 1006^b18 (this has been discussed); or, 1006^b13–28 is not

intended to assist the present argument at all, but prepares the ground
for Part III. The comparative feebleness of these answers gives the
opening to the champions of type 2, whose case is in three stages. (i) At
1006ᵇ13 the sense required for 'signify' is such that the proposition there
stated about the word 'man' would not be thought by Aristotle to apply
to every univocal noun and adjective (see note ad loc.). (ii) In ᵇ28 it is
possible, as we have seen, to understand Aristotle to say that the ex-
plication of 'man' belongs to men necessarily, something which is not
true of the explications of e.g. 'pale' and 'large', since no man is essentially
pale or large. (Alternatively, even if in ᵇ28 'necessary' governs the whole
conditional, Aristotle might still think what is said there false of 'pale'
and 'large', on the different ground that the definition of 'pale' is not
true of pale things, but only of their pallor—see *Categories* 5. 2ª29–34 but
contrast Γ 5. 1010ᵇ25–6.) (iii) Given these interpretations of 1006ᵇ13
and ᵇ28 it is possible to find a connection between 1006ᵇ13–28 and
the present paragraph, viz. the suppressed implication: if 'man' is ex-
plicated by 'two-footed animal' and 'not-man' cannot be so explicated,
it follows that men are necessarily two-footed animals. Unfortunately
it appears that, in whichever way we construe the 'necessarily' in its
consequent, this suppressed implication ought not to be accepted by
Aristotle as true. What is six-foot long is not, in either way, necessarily a
length of six feet; yet 'to be six-foot long' fits the type 2 interpretation of
1006ᵇ13, as having no explication which also explicates 'not to be six-
foot long'. The type 2 interpretation thus appears to confuse two different
restricting conditions on predicates—roughly speaking that they be non-
relative and that they be essential. Whether it can be purged of this con-
fusion, without reducing to the non-controversial assertion that Aristotle
does not apply PNC without qualification to relative predicates, is not
clear, but, even if not, its readings of 1006ᵇ13 and ᵇ28 remain possible.

Γ 4: 2nd Argument, Part II (1006ᵇ34–1007ª20)

1006ᵇ34. "The same argument applies" if—Aristotle apparently means
—one starts by assuming a signification for 'not-man' (an "indefinite
name", *De Interpretatione* 2. 16ª32). It is hard to see how the second
sentence explains this contention. It would fit better with 1006ᵇ13–18,
to which it apparently refers back. But the reference is not wholly apt,
because the previous passage argued to the conclusion, not that 'man' and
'not-man' signify different things, but that their signifying different
things would be compatible with their signifying "about" one thing.
At ᵇ8–9 the opponent is assumed, in apparent disregard of 1006ª18–21,
to have been asked a question such as 'Is Callias a man?' Aristotle's
objections to the answer 'yes and no' are not quite fair. The opponent
who appended to his answer 'and he is pale' would be adding something
that does not answer the question put, but 'and he is not a man' does

constitute an alternative answer. Nevertheless it is reasonable to insist on dealing with alternative answers one at a time.

Γ 4: 2nd Argument, Part III (1007ª20–ᵇ18)

pp. 206-8 **1007ª20.** This argument introduces some of Aristotle's more technical metaphysical notions. Its concluding remark is illuminated by *Posterior Analytics* I 22. 83ª24–32: "Again, things signifying a substance signify, about that of which they are predicated, just what so-and-so or just what a certain so-and-so [is]. Any things that do not signify a substance, but are said about another subject which is not just what so-and-so nor just what a certain so-and-so [is], are coincidental, as for instance pale about man: for a man is not just what pale nor just what a certain pale [is]; rather, doubtless, he is an animal, for a man is just what an animal [is]. Any things that do not signify a substance must be predicated about some subject and nothing can be pale which is not a certain other thing that is pale." (Cf. *Posterior Analytics* I 4. 73ᵇ5–8; on elision of the verb after 'just what' cf. 1006ᵇ13, where the elided word was taken to be 'signify'.) In the last sentence of this passage Aristotle means not that what is pale must have other properties besides, for that is true of what is a man or an animal, but that what is pale cannot be identical with the pale that it is. A particular man, therefore, *is* identical with man, and with 'a certain animal' (i.e. a kind of animal). Aristotle's theory thus distinguishes two types of predication: essential predicates, the words for which "signify a substance" ('substance' as at *Δ* 8. 1017ᵇ21–3), are identical with the subjects of which they are truly predicated; other predications are true in virtue of the fact that two distinct items, e.g. a substance and a quality, "coincide". This theory has the consequence that nothing can possess more than one essential predicate ("for it, to *be* is nothing else"), so that e.g. 'man' and 'a certain animal' must be capable of signifying the same thing. Aristotle uses that consequence to argue that if two contradictory predicates such as 'is a man' and 'is not a man' (or 'is a not-man') are essential, and if they are truly predicable of the same subject, say Callias, then the things they signify must be identical with that subject and so with each other. But, as was stated at 1006ᵇ13, things signified by contradictory predicates are not identical. Therefore, if two such predicates are truly predicable of the same subject, they are not both essential predicates of that subject; and if not both, then (he assumes) neither. "Just what to be a man [is]" etc.: Aristotle's meaning must be 'to be just what a man is' but his word-order prevents that translation by separating 'just what' from 'animal' at ª22–3 and from 'man' at ª28–9. "Yet those are its denials": and so would have to be identified with it by the opponent.

The argument seems vulnerable at two points. (i) It relies on a dubious theory of predication; for even if it is possible to make sense of the

distinction between essential and coincidental predications, the former
are no more statements of identity than the latter are (on the origin of
this confusion not much has been written, but see G. E. L. Owen, 'The
Platonism of Aristotle', 156–63). (ii) Although the premiss carried for-
ward, if taken in sense (2) or sense (3) of the note on 1006ᵇ13, is extremely
plausible, it does not follow rigorously from the opponent's original ad-
mission that 'man' is being used with a single signification.

1007ᵃ33. The argument that not all predications can be coincidental
(i.e. here, non-essential) is in two stages: (A) if everything is a coincidence,
"it will be necessary to go on to infinity" (ᵃ33–ᵇ1); (B) "but that is
impossible" (ᵇ1–15).

(A) It is possible to form an endless series of true 'is' sentences in each
of which the grammatical complement is the expression which was
grammatical subject in the last: e.g. 'a man is pale', 'Callias is a man',
'this body is Callias' . . . According to Aristotle's theory of predication,
the first of these examples predicates one item, pale, of another, man,
whereas both of the other examples predicate an item of itself. For that
reason the endless series of *sentences* does not generate an endless series
of *things*, but at some point we arrive at a thing not "predicated about a
certain subject", i.e. not predicated of anything else (in Aristotle's usage,
though not in ours, x's subject, if any, is necessarily different from x).
Aristotle's thesis is that without essential predication it is not possible to
terminate this series of ever different subjects, and "there will not be
anything which things are initially about". In actual fact, of course, its
termination requires only that there should be true statements of identity,
so that this stage of the argument assumes that all true statements of
identity predicate essentially, the converse of the assumption in ᵃ20–33.

(B) Aristotle next states that, so far from an endless series of coinci-
dental predications, there cannot be a series with even two members:
given that Y coincides in X, it is not possible that any Z should coincide
in Y. This is qualified to allow for the transitive case in which Z and Y
coincide because both coincide in X. Setting that case aside, Aristotle
considers two ways in which a non-transitive series might be constructed.
(i) Y (pale) coincides in X (Socrates) and Z coincides in XY (Socrates the
pale). That cannot happen, he says, because XY is not a unity (cf. *De
Interpretatione* 11. 21ᵃ7–14). (ii) Y coincides in X and Z in Y. Aristotle
baldly asserts that that also is impossible, except in the manner set aside:
a predicate of X's predicate must be a predicate of X. This argument is
unsatisfactory both because the last assertion is false (e.g. pale is common,
but Socrates who is pale is not common, cf. *Soph. El.* 179ᵃ26 ff.) and
because, even if true, it would not establish (B), viz. the impossibility of an
infinite series of coincidental predications. In fact, Aristotle has perceived
correctly that (B) cannot be established as initially stated, but he has

weakened it so much that it no longer combines with (A) to yield his conclusion. The version he should have substituted is: any series of true coincidental predications must have a first member (i.e. lead back to a subject not predicated of any other subject). But that version, though defensible, is not defended by Aristotle here.

If the final sentence sums up Part III it is, of course, an exaggeration. The most that could have been shown is that *essential* predicates are not co-predicable with their contradictories.

Γ 4: *3rd Argument* (1007ᵇ18–1008ᵃ7)

1007ᵇ18. Although the contradictory of PNC, as formulated at *Γ* 3. 1005ᵇ19–20, is

(*a*) $\exists x \, \exists F \Diamond \, (Fx \, \& \, -Fx)$,

Aristotle now, and for the rest of the chapter, represents his opponent as asserting something bolder, the refutation of which will not establish PNC. The version needed at ᵇ24–5 ("if the contradiction is really true"), and at ᵇ34 ("if the affirmation holds good of him, necessarily its denial does too") taken with 1008ᵃ2 ("and if it does, its affirmation will too"), is

(*b*) $\forall x \, \forall F \, (Fx \leftrightarrow -Fx)$.

From (*b*) the paragraph deduces by two arguments, ᵇ20–5 and ᵇ29–ᵃ2, the absurd consequence that "everything will be one". The former argument appears to be this. The "thesis of Protagoras" is

(*c*) $\forall p$ [(someone believes that *p*) → *p*].

Assuming

(*d*) $\forall x \, \forall F$ [(someone believes that *Fx*) ∨ (someone believes that −*Fx*)]

it follows that

(*e*) $\forall x \, \forall F \, (Fx \vee -Fx)$.

But (*b*) and (*e*) entail

(*f*) $\forall x \, \forall F \, (Fx \, \& \, -Fx)$

which Aristotle expresses in two ways: "the same thing will be both a warship and a wall and a man" sc. and so on for every predicate, and "everything will be one" sc. have the same predicates ("nothing is truly one" in the different sense that nothing is countable or discriminable). The third sentence illustrates one side of the disjunctive argument from (*d*) to (*f*), taking a premiss of the form 'someone believes that −*Fx*'. (*e*) construes "something" and "it is possible" in the second sentence as 'anything' and 'it would be true'. Both readings are required if the conclusion is to mean that everything will be one actually. But at ᵇ26 Aristotle is prompted by Anaxagoras' dictum to suggest that his opponent

has without realizing employed 'be' in the "indefinite" sense 'can be' (cf. Γ 5. 1009^{a}30–6), so that the conclusion ought to go

(f') $\forall x\, \forall F\, (\diamondsuit Fx\ \&\ \diamondsuit -Fx)$,

which would follow by (b) from

(e') $\forall x\, \forall F\diamondsuit\, (Fx \vee -Fx)$.

This leads to the second argument (^{b}29). The opponent can be forced to accept the stronger proposition (e) rather than (e'), and so (f) rather than (f'). For if the denial of G ($\triangle G$) holds good of what is G, *a fortiori* the denial of F ($\triangle F$) holds good of it if it is *not* F:

(g) $\forall x[\exists G(Gx\ \&\ \triangle Gx) \rightarrow \forall F(-Fx \rightarrow \triangle Fx)]$.

In the ensuing example Aristotle takes (g) as equivalent to

(h) $\forall x[\exists G(Gx\ \&\ -Gx) \rightarrow \forall F(Fx \vee -Fx)]$.

He assumes that the closure of the antecedent of (h) can be asserted (presumably on the basis of (b)), and (e), the closure of its consequent, accordingly detached. In the three final sentences, repeating that in the example either Fx or $-Fx$, he shows that each of these combined with (b) entails that $Fx\ \&\ -Fx$, which generalizes into (f).

1008^{a}2. The previous paragraph displayed the opponent as committed to (e), a version of the principle of excluded middle. It should not be surprising that Aristotle now represents him as committed also to denying a version of the principle. The four propositions are:

> (i) he is a man;   (iii) he is not a man;
> (ii) he is not a man;   (iv) he is not not a man.

Aristotle argues: if (i) and (ii) "make up the one former", sc. conjunctive affirmation, (iii) and (iv) will make up an opposite conjunctive denial; the former is, by (f) of the previous paragraph, true; hence, by (b), the latter is also true. The argument overlooks the fact that these two conjunctions, being of the form '$p\ \&\ q$' and '$-p\ \&\ -q$', are not contradictory opposites, as the application of (b) requires.

Γ 4: 4th Argument (1008^{a}7–34)

1008^{a}7. Three versions of the opponent's thesis are now distinguished. The boldest is (b)—or (f), which the 3rd argument deduced from (b); alternatively, (b)'s double implication may be taken in one direction only, giving

(j) $\forall x\, \forall F\, (Fx \rightarrow -Fx)\ \&\ -\forall x\, \forall F(-Fx \rightarrow Fx)$;

or thirdly the thesis may hold "in some cases but not in others", which would allow it to say as little as

(k) $\exists x\exists F\, (Fx\ \&\ -Fx)$.

It is not clear whether Aristotle would distinguish (*k*) from (*a*); in any case he dismisses it from the discussion with the inadequate comment that it narrows the field of dispute. (*j*) is, he argues, untenable; for if '*x* is not a man' may be "firm and certain, the opposite assertion would be still more certain". Affirmations are said to be "prior to and more certain than" denials at *Posterior Analytics* I 25. 86ᵇ33–4; but that contention needs to take 'certain' ('*gnōrimos*') in the sense 'intelligible', which is not suitable here.

The argument of ᵃ28–30 came to be known as *peritropē* or turning of the tables; cf. *Theaetetus* 170–1, *Γ* 8. 1012ᵇ13–22, *K* 5. 1062ᵃ36–ᵇ7.

1008ᵃ30. This seems to belong with 1008ᵃ20–7, and to argue against the opponent who says "it is not true to state separately". If 'man-and-not-man' is to be understood as not predicating two things, it has not been made intelligible at all and nothing is "definite"; if it does predicate two things, they can (and, by 1007ᵃ8–20, should) be predicated separately.

Γ 4: *5th Argument* (1008ᵃ34–ᵇ2)

1008ᵃ34. Here, but not at *Γ* 7. 1011ᵇ25 and *Γ* 8. 1012ᵇ7–8, Aristotle hesitates to appeal to the definitions of 'true' and 'false'.

Γ 4: *6th Argument* (1008ᵇ2–31)

1008ᵇ2. This argument continues the discussion of truth initiated at 1008ᵃ18. (The two verbs translated 'be in error' are from the same root as the word meaning 'false'.) We are to consider three beliefs: let A believe that Callias is pale, B that Callias is not pale, C that Callias is pale and not pale. Aristotle asks his opponent to choose among three alternative judgements on C's belief. The third, in ᵇ7, is that C, like A and B, is in error; the first therefore, in ᵇ3, is that C is not in error, and the second, in ᵇ5, that C is less in error than A and B (this follows Ross's restoration of the corrupt text, also adopted by the OCT; see Ross's notes). Aristotle proceeds to show that each of the three judgements is untenable. Against the first he objects that 'Callias is pale and not pale' is unintelligible if it does not entail 'Callias is pale' and 'Callias is not pale'. It is not clear why a separate objection should be needed against the second judgement, or how Aristotle's objection works (it would work, as an anticipation of 1008ᵇ31–1009ᵃ5, if we adopted the reading of some MSS. 'but the one who believes the former way has more truth'; but that reading, as Ross says, presents the opponent with an alternative he could not wish to defend). Against the third alternative Aristotle makes the good point that speech, and also belief, depends on not everything having the same truth-value.

1008^b12. The discussion now takes a new turn. Aristotle has already argued *a priori* that PNC cannot be disbelieved (*Γ* 3. 1005^b23–32); now he appeals to experience as showing that at any rate the strong contrary thesis (*b*), stated at 1007^b18–19, is never believed. He does not suggest that this fact is sufficient to dispose of his opponent. The example of observing a man indicates that a person's actions may vouch for his theoretical as well as his practical beliefs; but the cautious conclusion at ^b26–7 expresses confidence only about some of the latter. In the two final sentences Aristotle apparently faces the (irrelevant) objection that from 'everybody believes some simple propositions and not their contradictories' it does not follow that any simple propositions are true; for beliefs, unlike knowledge, may be false (the analogy with health shows that this is the intended distinction between opinion and knowledge). What is the force of Aristotle's reply? If he means 'the believer of falsehoods will be anxious to exchange them for truths: so there must be truths to exchange', that is inadequate in three ways: (i) the premiss entails not the existence, but belief in the existence, of truths; (ii) the analogy with health is imperfect, since the believer of falsehoods must suppose, not that he can exchange his condition for one of true belief, but that his condition is already one of true belief; (iii) in Aristotle's strict usage the attainment of 'knowledge' (*episteme*) about what is better and worse, as about contingent matters in general, is impossible (*Nicomachean Ethics* VI 3. 1139^b20–1) and so not a subject of rational anxiety.

Γ 4: *7th Argument* (1008^b31–1009^a5)

1008^b31. Similar arguments have been brought in modern times against the sceptical thesis that everything is uncertain.

CHAPTER 5

There are echoes in this chapter and the next of Plato's *Theaetetus* 151–86, a longer critique of the thesis of Protagoras that "man is the measure of all things, of those that are that they are and of those that are not that they are not" (*Theaetetus* 152 a). Plato more than once states the thesis in the form "what is thought by [or, seems to] each person, that also is" (161 c) or " . . . is to him who thinks it" (170 a, 177 c). Aristotle also employs the verb 'be thought' ('*dokein*'), but more frequently '*phainesthai*', often rendered 'appear' but in this translation by the verb 'be imagined', with whose wide range of uses it corresponds quite closely. The noun '*phantasia*' (*Δ* 29. 1024^b24, 26, 1025^a6) means 'imagination', not 'appearance'.

   The layout of the chapter is as follows. The first two paragraphs introduce the thesis of Protagoras and distinguish two types of response

to it. Leaving the second type to *Γ* 6, Aristotle thereafter deploys three
sceptical arguments and attempts to expose their weaknesses: at 1009ᵃ
22–30 he states, and at ᵃ30–8 responds to, an argument from changeability
against PNC; at 1009ᵃ38–ᵇ12 he states, and at ᵇ12–33 and more espe-
cially 1010ᵇ1–1011ᵃ2 responds to, an argument from contrary appear-
ances to a Protagorean conclusion; and at 1010ᵃ7–15 he states, and at
ᵃ15–ᵇ1 responds to, a further argument from changeability to the con-
clusion that "one ought to say nothing" (1010ᵃ12).

1009ᵃ6. Aristotle ignores the fact that 1008ᵃ7–15 distinguished differ-
ent versions of the "opinion" that denies PNC. The version he now cites,
"it is necessary that everything should be simultaneously true and false",
is equivalent to the strong denial (*f*)—for the reference-letters, see notes
to 1007ᵇ18. He is clearly right in saying that (*f*) entails Protagoras' thesis
(*c*), since if everything is true, everything that is thought is true. The
converse entailment needs a further premiss. But what? Aristotle's—
"many people have mutually contrary beliefs"—is in effect

(*l*)   ∃*x* ∃*F* (someone believes that *Fx* and someone believes that −*Fx*),

which is not strong enough; he needs

(*m*)   ∀*x* ∀*F* (someone believes that *Fx* and someone believes that −*Fx*).

Yet who believes, as (*m*) requires, that e.g. Socrates is a warship? It will
not do to point to the opponent of PNC himself, for according to Aristotle
he does not believe what he says (*Γ* 3. 1005ᵇ25–32). Nor is (*k*), the *weak*
denial of PNC, equivalent to Protagoras' thesis (*c*): given (*l*), (*c*) entails
(*k*), but (*k*) does not entail (*c*).

1009ᵃ16. Aristotle now introduces the important distinction between
opponents who are in genuine perplexity and those who relish what *De
Sophisticis Elenchis* 2. 165ᵇ11 calls "combative and eristic" debates, and
look for victory or defeat as in a match; cf. *Γ* 6. 1011ᵃ3–17, 7. 1012ᵃ17–24,
Topics I 12. 105ᵃ16–19. *De Sophisticis Elenchis* studies tactics appropriate
against the latter; 'philosophy' is interested only in the former (cf.
Γ 2. 1004ᵇ25–6). To gain a sporting triumph it is necessary to refute
your opponent's conclusion, but if your object is to remove perplexity
you need only tackle the "thinking" that led to that conclusion, i.e.
expose the error in his argument. You need not force him to agree with
you; only take away the considerations which, as he thought, forced him
to disagree with you. This therapeutic style of philosophy is well exempli-
fied in the remainder of the chapter. There is some conflict between
Aristotle's previous claim (*Γ* 3. 1005ᵇ25–32) that Heracliteans do not
believe what they say and the present admission that a perplexed op-
ponent may "have this belief"; cf. *Γ* 6. 1011ᵃ10 "they are not actually
convinced", 1011ᵃ3 "those who are convinced". The former description
is shrewder, as Hume saw: a man with a philosophical problem does not

really *believe* the paradox of which he thinks he has an incontrovertible proof, but he is still different from the debater who "states it for the sake of stating it".

1009ᵃ22. This first argument does not deal with Protagoras, but develops the suggestion made at Γ 4. 1007ᵇ26–9 that those who say that e.g. Callias is simultaneously pale and not pale do so on the grounds, and in the sense (ᵃ32), that he is simultaneously capable of being pale and capable of being not-pale. "Contraries come to be out of the same thing": sc. come to hold of the same subject. The sceptical conclusion is extracted by combining this familiar fact with the ambiguous principle that "it is not possible that what is not should come to be". Aristotle is clear that his opponent needs to take the principle to say, falsely, that what is not *F* cannot come to be *F*; from which it is concluded that if Callias comes to be now pale, now not pale, he must have been pale and not pale all along (this must be preferred to the crass argument supplied in *K* 6. 1062ᵇ24–30). What is the innocuous sense of the principle in which "what they say is correct"? (1) Without doubt the dictum was sometimes taken to mean 'what is not any *G* cannot come to be *F*', which, of course, lends no support to the conclusion that Callias was pale and not *pale* all along. (2) The quotation from Anaxagoras suggests another interpretation: what becomes pale must all along contain the materials of pallor, have, as it were, the pallor inside it waiting to be manifested. This doctrine need not have the explanatory scientific flavour which Anaxagoras seems to have given it; at its baldest it amounts to saying no more than that if Callias is to become pale he must already be capable of being pale, be pale "potentially". But the scientific hypothesis lends plausibility, otherwise lacking, to the description of Callias as *being* pale and not pale together (not pale outside, pale somehow 'inside'). Most of Aristotle's explication refers plainly to this second account: "that which is [*F*] may be so called in two ways"—'actually *F*' and 'potentially *F*' (cf. *Δ* 7. 1017ᵃ35–ᵇ9). But when he says "it is possible . . . for the same thing to be simultaneously both a thing-that-is and a thing-that-is-not (only not in the same respect)" the objection arises that the respect need not differ in the case of potentiality: Callias can be at once potentially *pale* and potentially not *pale*. Does the parenthesis confusedly import the other point, that Callias can be actually *F* and not *G* together but not actually *F* and not *F* together? Or does Aristotle take the fact that Callias must be actually pale or actually not pale to imply that he cannot at one time be potentially both? This is the first attempt, at least since Γ 4. 1006ᵃ31–1007ᵃ20, to attack the bare contradictory of PNC and so to defend PNC itself. In ᵃ36–8 Aristotle reverts to his more cautious contention that some contradictions are false, pointing out that that contention is not to be overthrown by any argument based on change,

which some things do not undergo (cf. 1010ᵃ1–7, 25–35; in none of these places does Aristotle suggest that PNC *applies* only to changeless things).

1009ᵃ38. Aristotle now turns to the thesis of Protagoras. In accordance with his prescription to examine not the thesis itself but the "thinking" which led to it, he proceeds to describe what is to us one of the most familiar arguments for scepticism, the argument from contrary appearances, especially sense-impressions (cf. *Theaetetus* 154 ab). The sceptical conclusion, drawn by many modern philosophers and (as Aristotle tells us) by Democritus, is that it is impossible to know, and perhaps meaningless to say, that something is e.g. sweet, and we must be content to say e.g. that it tastes sweet to Socrates; Protagoras concluded differently that '*x* is sweet' is not meaningless but elliptical for e.g. '*x* tastes sweet to Socrates'.

1009ᵇ12. Aristotle begins his response to the argument from contrary appearances at 1010ᵇ1. Meanwhile, he comments now that the argument is nourished by confusion between the concepts of wisdom (*phronēsis*, defined at *Nicomachean Ethics* VI 5. 1140ᵇ5–6 as "a true reasoned state concerned with action regarding what is good and bad for a man", but here more general), perception (or sensation, *aisthēsis*), and modification (*alloiōsis*, change of quality, traditionally rendered 'alteration'). In *De Anima* Aristotle argues that perceiving (III 7. 431ᵃ4–8) and understanding (II 5. 417ᵇ2–16) consist not in being brought into new states but in functioning in accordance with states already possessed; and in the *Theaetetus* perception is defined in such a way (152 b 11) that he who perceives, unlike him who is wise (ᵃ31–3), does not necessarily have the truth. Aristotle does not indicate the reasoning which he attributes (not very convincingly, nor in every case seriously) to the earlier writers he mentions. It may be this: if someone is brought into a state in which *x* appears *F* to him, then he perceives (*x* to be) an *F* thing; if the latter, then he knows of (*x*'s being) an *F* thing; if the latter, *x* is *F*; therefore *x* is as it appears. It is not clear that *both* of the first two premises in this argument can be wrong; on the other hand it is enough for Aristotle if one of them is wrong, as is obviously the case. Perception is mentioned in none of the sayings he quotes; and the theories adumbrated in all but that of Anaxagoras are quite un-Protagorean unless combined with the proposition that having something in mind is a "state of wisdom", a proposition which is tempting only because the words for 'have in mind', 'be out of one's mind', and 'with other things in mind' share the root 'phron-' with '*phronēsis*'.

1009ᵇ33. Aristotle is not the last philosopher to have expressed dismay at the legacy of some of his forerunners in the subject.

1010ᵃ1. With a disconcertingly Platonic air this paragraph seems to concede that Protagoras was right about perceptible things. As the reference to indefiniteness shows, however, Aristotle means that he was right only in the harmless way discussed in 1009ᵃ32–8. The allusion to Epicharmus is lost.

1010ᵃ7. If things are too changeable to be reidentified (Heraclitus) or even identified (Cratylus), it is impossible to make true assertions about them—or false ones, as perhaps Cratylus realized. Cf. *Theaetetus* 157 bc, 182 d–183 b. Aristotle tells us (*A* 6. 987ᵃ32) that Plato was early influenced by Cratylus. It is quite possible that Heraclitus' views are incorrectly reported by both Plato and Aristotle.

1010ᵃ15. If the sceptic says, for example, that water while getting hot is neither hot nor cold, Aristotle replies (i) it still has some cold and already has some heat (cf. *Physics* VI 9. 240ᵃ19–26); (ii) its heat, like anything else in process of generation, is made out of something else (the element fire) and produced by something else (e.g. a cook), and these causes must terminate in something not undergoing change (α 2. 994ᵃ1–19); (iii) even a changeable thing has one feature, its form, which remains constant throughout its existence. It does not follow from this last point, as Aristotle oddly implies, that changeable things can change only in quantity and not in quality; form is one kind of qualification (cf. *Δ* 14. 1020ᵃ33–ᵇ2), but that in respect of which "bodies are . . . said to be modified" is another (*Δ* 14. 1020ᵇ8–12).

1010ᵃ25. Aristotle believed that bodies in the celestial regions, though plainly subject to motion, are otherwise changeless.

1010ᵃ32. Aristotle does not explain why the Cratylean should be disturbed that the strong denial of PNC has a consequence inconsistent with his assumption that everything is changing. Ross's comment that this and the two preceding paragraphs fail to show that "change is reconcilable with the law of contradiction" misunderstands their purpose, which is to reconcile change with the possibility of true assertion (1010ᵃ7–10).

1010ᵇ1. Returning to the thesis of Protagoras, Aristotle first looks at a new argument in its support (ᵇ2–3, discussed below), and then (ᵇ3–14) rebuts the argument already stated at 1009ᵃ38–ᵇ12. The behaviour of the expatriate who dreams he is in Athens demonstrates man's ability to grade appearances. Does Aristotle mean that *we* know that the dreamer is not in Athens, or that *he* knows? If the latter, does he reveal his knowledge by not starting for the Odeon when he wakes, or by not going there in his dream (but behaving in some less consequential manner), or by making no actual bodily movements while dreaming? The objec-

tion that two contrary appearances may be equally authoritative is considered in the next paragraph and at *Γ* 6. 1011ᵃ25–ᵇ1. "As Plato also says": *Theaetetus* 178 cd.

Against the argument that what is imagined must be true because perception is true, Aristotle answers in this paragraph (ᵇ2–3) that not all that is imagined is perceived, and in the next (1010ᵇ14–19) that not all perception is true. Both answers are, on any reasonable interpretation, convincing. But both are ambiguous, and the second raises considerable problems. These notes discuss three interpretative questions: (A) what kind of imagination is opposed to perception? (B) did Aristotle himself believe that perception of "special" objects is true? (C) what does he mean by "perception is true"?

(A) At least three kinds of imagination (*phantasia*) differ from perception. It is not clear whether Aristotle has in mind: (1) creative imagination (cf. *De Anima* III 3. 427ᵇ16–21), whether pictorial as when one imagines the death of Hector (*De Memoria* 1. 450ᵃ12, *De Insomniis* 1. 459ᵃ14) or non-pictorial as when one pretends or assumes that $\sqrt{2}$ is rational or giraffes are extinct; (2) the imagination that is allegedly exercised by somebody when things have a certain appearance to him, whether or not the appearance does, or is judged by him to, correspond to reality (*De Anima* III 3. 428ᵃ24–ᵇ9, where Aristotle contrasts such *phantasia*—a stick looking bent in water—with judgment, and see K. Lycos in *Mind* 1964, pp. 496–514); or (3) judgment (*De Sophisticis Elenchis* 4. 165ᵇ25, *Nicomachean Ethics* III 5. 1114ᵃ32, and see *De Anima* III 10. 433ᵇ29 on the contrast between ratiocinative and perceptive *phantasia*).

(B) The special objects of four senses are listed at *De Anima* II 6. 418ᵃ12: "sight of colour, hearing of sound, taste of flavour, while touch has many different" objects. *De Anima* III 3. 427ᵇ12 says "perception of what is special is always true" and III 6. 430ᵇ29 "seeing what is special [or "pale"—text doubtful] is true, but whether a pale thing is a man or not is not true". This view is modified at *De Anima* III 3. 428ᵇ18: "perception of what is special is true or is liable to falsehood to the least possible extent". *Γ* 6. 1011ᵃ34 may indicate as Aristotle's opinion (but see note ad loc.) that perception of what is special is true when the circumstances are favourable. The evidence of 1010ᵇ2 itself is doubtful because of the text. That translated supplies an 'if' and a 'not' not in the MSS.; without them the sense would be 'not even (*oude*) perception, at least of what is special, is false, but . . .'. Editors have noticed that 'not *even*' is inappropriate in an argument designed to prove that imagination *is* sometimes false. Tredennick conjectured '*ou dē*', giving the sense 'admittedly perception, at least of what is special, is not false, but . . .'. But Alexander's comment suggests the reading translated, which differs from Tredennick's in leaving Aristotle uncommitted.

(C) 'Perception is true' evidently means the same as 'perception is not mistaken' (*De Anima* II 6. 418ᵃ12, *De Sensu* 442ᵇ8). Five interpretations are possible. (1) Perception is an achievement, in the sense that if some-one perceives (or perceives something to be) an *F* thing, it follows that what he perceives really is *F*. However, Aristotle's previous distinc-tion between perception and wisdom (1009ᵇ12) seemed to turn on the former's not being true in this way; moreover, '*aisthēsis*' can mean 'sense-impression', and sense-impressions do not have to be true in this way; and finally all perceptions are true in this way, not only those of special objects. (2) Sense-impressions are unmistakable, i.e. no one can be in error as to how things look, sound, feel, taste, and smell to him. But imagin-ation has as strong a claim to be unmistakable. (3) Sense-impressions are veridical or incorrigible, i.e. as things look etc. so they really are. Restriction of the doctrine, in this sense, to special objects would give it a Berkeleian flavour. The objection that Aristotle rejected the Berkeleian proposition (Kenny, *Mind* 1967) tends to show not that he did not use the word 'true' here in the sense 'veridical' but that he did not accept without qualification the doctrine that perception is true of its special objects. (4) Kenny suggests that by 'perception of what is special is true' Aristotle meant 'each perception, i.e. sense, is the court of appeal by which we judge its proper objects': a man may look pale who is not, but the mistake's detection and correction rest finally on further looking. But in this sense imagination is true also; for if something appears to a man as it is not, his mistake is corrected only when the thing *appears* to him as it is. In any case the Protagorean thesis must go beyond the unexceptionable claim that thought and imagination are arbiters of truth; and its falsity could not therefore be exposed by contrast with a doctrine about perception so understood. (5) According to Hamlyn (*Aristotle's 'De Anima'*, on II 6. 418ᵃ11), the doctrine of the *Metaphysics* passage is that "a sense cannot confuse its object with that of another sense . . . a person cannot e.g. be mistaken when using hearing as to the fact that he is hearing sound". This parades as a version of (3) but, as Hamlyn notes, depends on the conceptual point that what is heard must be a sound; strictly speaking, Aristotle is not entitled to the claim that no one who hears can mistakenly believe he does not hear a sound, but only to the claim that such a mistake would be conceptual rather than perceptual. The interpretation makes good sense of Aristotle's contrast, for in the case of imagination nothing corresponds to the fact that sounds cannot be misheard as colours. Among these interpretations (3) and (5) seem to be the best, (5) if ᵇ2–3 gives Aristotle's own opinion.

1010ᵇ14. This paragraph serves a double purpose, supporting 1010ᵇ2–3 (not all perception is true) and ᵇ3–14 (perceptions differ in reliability). The sense of "authoritative" might be (4), that sight is the arbiter of

colour-judgements etc., or (5), that colours cannot be mis-seen as tastes or sounds, or (3), that one colour cannot be mis-seen as another. The last is a gross exaggeration, but is suggested by the unrestrictedness of "so-and-so and not so-and-so".

1010^b19. In the two final paragraphs Aristotle once again, as at 1009ᵃ36–8 and 1010ᵃ25–ᵇ1, ends his critique by insisting that the argument from contrary appearances would not, even if cogent, apply to everything. He makes two independent claims. (i) The premiss of the argument, viz. that the same thing may present contrary appearances, is true of sweet wine but false, even over a span of time, of "the sweet" which the wine is. (ii) The conclusion of the argument, viz. that contrary properties are jointly predicable of the same thing, is likewise false of "the sweet" which, being unalterable, cannot possess contrary properties even at different times ("it is not possible that what is necessary should be thus and otherwise"). Of these claims the first is stated by Aristotle without evidence and the second has no force against the Protagorean *argument*. Moreover its implicit definition of alteration in terms of contrary properties is one which opponents of PNC would have no reason to accept, since according to them even unaltered things possess contrary properties. "In the body": sc. of the perceiver; Aristotle ignores other affecting circumstances, such as the medium of perception. "Anything that is going to be sweet is such of necessity": this can hardly be intended to *restate* Aristotle's claim that the sweet is itself unalterable, for its subject must mean 'possessors of the quality sweet'; it will *support* that claim only if "of necessity" governs the whole clause (cf. perhaps *Prior Analytics* I 15. 34ᵃ7, 17, 21).

1010^b30. The argument is: some things do not depend for their existence on the existence of perception (are "prior to perception"); perceptibles do so depend; therefore some things exist which are not perceptible. What Aristotle here distinguishes as "perceptibles" and "subjects which produce perception" are both called perceptibles at *De Anima* III 2. 426ᵃ23–4, the former in the sense 'what is being perceived', the latter in the sense 'what is capable of being perceived'. This explains (i) how Aristotle can defend the second premiss above (but are the two senses of 'perceptible' true of *different things*?), and (ii) that there is no conflict between that premiss and *Categories* 7. 7ᵇ35–8ᵃ12, which argues that though the perceptible and perception are relatives (cf. "called what they are with reference to one another") the former is prior (cf. *Δ* 15. 1021ᵃ26–ᵇ3). But at the same time it makes Aristotle's conclusion worthless against the argument from contrary appearances, which claims to apply to everything perceptible in the *Categories* sense 'capable of being perceived'. "Sense-impressions": *aisthēmata*.

CHAPTER 6

Γ 5 has not attempted to refute the thesis of Protagoras, but to under-
mine the arguments in its favour. Aristotle now explains his objections
to undertaking refutation (1011ᵃ11–16) but thereafter undertakes it
(1011ᵃ17–ᵇ12); cf. the relation of Γ 4. 1005ᵇ35–1006ᵃ11 to the rest of that
chapter.

1011ᵃ3. Comments on the distinction between "those who are con-
vinced" and "those who merely state these things" will be found in
the notes on Γ 5. 1009ᵃ16. Aristotle's response to those who desire the
criteria (*Theaetetus* 178 b) of correct judgements to be not only stated, as
at Γ 5. 1010ᵇ1–19, but demonstrated is ambiguous: does he mean that
nothing is both a principle and demonstrable, or that nothing can be
both a principle and demonstrated? Is either response adequate, without
any indication that alternative principles are inferior to those ordinarily
accepted? For the question 'Are we asleep?' cf. *Theaetetus* 158 bc.
 Aristotle's epigrammatic objection against "those who merely state
these things" has been taken in various ways. (1) 'They demand the
right to contradict themselves, while at the same time saying something
('refute me') which is inconsistent with that demand' (Bullinger). This
makes the right point, that since the conjunction of a statement of the
form '*p* and not-*p*' with its contradictory is itself of the form '*p* and not-*p*',
its contradictory is not inconsistent with it. But the point comes better
from (2) 'They ask us to refute them by establishing the contradictory of
what they say, but their own assertion is a self-contradiction (which
implies that contradictories do not refute)'; for the same construction
see Γ 4. 1006ᵃ5. (3) 'They demand the right to contradict themselves, a
demand which from the outset contradicts itself' (Ross), i.e. they ask for
a licence which if granted is not granted.

1011ᵃ17. What follows is only a tentative interpretation of this diffi-
cult paragraph. The argument starts with an (invalid) *reductio*:

(*a*) everything imagined is true;

(*b*) everything imagined is imagined by someone;

(*c*) so everything true is true relative to someone.

In order to avoid the conclusion, Aristotle says, (*a*) must be emended to

(*a*1) everything imagined by so-and-so etc. is true,

where 'etc.' represents a specification of time, sense-organ, medium, and
the like (ᵃ21–4). Without explaining what the Protagorean would lose
by adopting the emendation, Aristotle next points out that a further

consequence of not adopting it ("if they subject themselves to argument but not on these terms") is to allow an argument from (a) together with

(d)   contraries can be imagined together (ᵃ25–8)

to

(e)   contraries can be true together (ᵃ24–5).

It remains to show that the same damaging consequence does not follow if the Protagorean consents to reform his position by adopting the emendation of (a), and this seems to be the purpose of the possibly corrupt sentence from ᵃ28 to ᵇ1. If (a1) is taken as universally quantified, then given (b) it entails (a) and so does have the same consequence. Thus Aristotle seems to need, at least from ᵃ28, the interpretation

(a2)   all the things imagined by one given person etc. can be true
          together

(e.g. if anything looks both red and round to one and the same eye at one and the same time etc., it can be both red and round together). Even (a2) will lead to (e) unless it can be shown that the correspondingly emended form of (d) is false. ᵃ28–ᵇ1 argues that it is: the same things are *not* ever imagined contrary "by the same perception and in the same aspect of it and in the same time". This assertion has been previously used, in Γ 5. 1010ᵇ14–19, to destroy the argument for (a) given in Γ 5. 1009ᵃ38–ᵇ12; and some commentators have thought that it has the same purpose here and that, since it is not for Protagoreans to undermine their own position, ᵃ28–ᵇ1 parenthetically repeats *Aristotle's* objection to that position. He would in that case be arguing, first, that because truth is not relative (a) has to be emended (ᵃ17–28) and, secondly, that the defence of (a) in its unemended form is inadequate (ᵃ28–ᵇ1). But this reversion to Aristotle's earlier argument is needless, whereas there is need for the reformed Protagorean to show that his emendation of (a) does the work for which it was designed and which it will not do if, as "the reasons previously mentioned" had indiscriminately asserted, contraries can be imagined by the same perception etc. The conclusion "so that this would be true", sc. (a2), is also more appropriate to the Protagorean trying to defend the consistency of a new-found position than to Aristotle for whom it would be a parenthesis in an already parenthetical argument.

   Some remarks must now be made about the textual problem raised by ᵃ28–ᵇ1. The words "the reply is that they are imagined contrary", supplied in the translation, are represented in our text by "but" (*'alla'*), which leaves the sentence without a main verb. One solution (Bonitz) accepts this bad grammar as conveying the sense given by the translation; another (Alexander) supposes that words to the same effect have dropped out of the text, not indeed from the place where the translation

inserts them, which would not account for the "but", but from after the first comma (ᵃ30), giving "[the reply is that] even on this account . . .". Jaeger also puts the lacuna in ᵃ30, but fills it differently: '[we shall say that their conclusion is that what is imagined by everyone is true,] and on this account . . .' Jaeger's filling imposes the 'parenthetical' interpretation, discussed above. The other filling can be taken either that way (so Alexander and Ross, 'our reply will be . . .') or the other (Bonitz, 'their reply will be . . .'). Among champions of the 'parenthetical' interpretation there is disagreement as to whether the words "and on this account everything is equally false and true" are (Alexander, Jaeger) or are not (Ross) part of the reply.

"On this account necessary" (ᵇ1–2): not on account of the emendation of (a), which according to ᵃ21–4 *avoids* the necessity of making truth relative, but (it seems) on account of the unsatisfactoriness of that emendation—viz. of (a2)—to anyone determined to maintain Protagoras' thesis.

There are difficulties in the paragraph which the foregoing interpretation leaves unresolved. Why does Aristotle present without separation two different *reductiones* of the Protagorean thesis that everything imagined is true, the arguments from (a) and (b) to (c) and from (a) and (d) to (e)? Why does he think the former argument valid? Why does he think that Protagoreans will find the conclusion of the latter argument unacceptable? Can ᵇ1–3 really mean that the emended thesis, (a2), is too weak to satisfy Protagoreans? If so, why does Aristotle trouble, in ᵃ28–ᵇ1, to absolve it from the consequence attending the unemended (a)?

The experiment with the crossed fingers is described and discussed in Ross's edition of the *Parva Naturalia*, on *De Insomniis* 2. 460ᵇ20–2.

1011ᵇ4. Aristotle now completes the demolition of Protagoras' thesis by refuting, in three arguments, its alleged consequence that truth is relative. (I) The first sentence draws from that consequence the absurd conclusion that everything true is believed. (II) Compression and inadequate terminology obfuscate the argument in the second and third sentences, which may perhaps be paraphrased as follows. (a) What is e.g. double can be relative to more than one thing, even double more than one thing, but the relation *being double* has just one converse relation, *being half* ("relative to . . . something definite", cf. *Categories* 7. 6ᵇ28–7ᵇ14); it does not also have the converse *being equal* ("the equal is not relative to the double", i.e. 'x is equal to y' and 'y is double x' are not equivalent). In general, then, every relation has just one converse). (b) Both 'is a man to' (according to the doctrine that truth is relative) and 'is thought to be a man by' express relations whose converse is 'thinks to be a man' (are "relative to that which has an opinion"). (c) Therefore 'is a man' and 'is an object of (such a) thought' express the same relation.

(*d*) Therefore men are essentially objects of thought. (*e*) Therefore men are not essentially thinkers, which is absurd. Aristotle does not justify the step from (*d*) to (*e*). (III) Not only 'is a man' but all other predicates will express relations with (generically) the same converse 'thinks to be (so and so)'. So the latter relation will have not one but infinitely many converses.

1011ᵇ13. The discussion has indicated: that PNC is the firmest opinion of all (*Γ* 3. 1005ᵇ8–34), the objections to "making this statement", sc. rejecting PNC (*Γ* 4, 6), and the arguments adduced by others for its rejection (*Γ* 5). As at *Γ* 5. 1009ᵃ6 Aristotle ignores the fact that through most of *Γ* 4 and most of *Γ* 5 he has addressed himself to theses more vulnerable than the mere contradiction of PNC. On 'contrary', 'lack', and 'denial' see *Δ* 10 and *I* 4.

CHAPTER 7

The arguments in defence of the principle of excluded middle (PEM) are stated in summary form and occupy less than a tenth of the space given to PNC in *Γ* 3–6. This is not because Aristotle thinks PEM less doubtful, for nothing can be less doubtful than PNC (*Γ* 3. 1005ᵇ22–4). The reason is partly that doubt about PEM had been expressed by none of Aristotle's predecessors except—so he thinks—Anaxagoras (1012ᵃ24–8); partly that his diagnosis of the PEM-sceptic's state of mind, at 1012ᵃ17–24, is the same as that of the PNC-sceptic's, and so requires no new discussion. The diagnosis shows that he does not, either, share the inclination of some modern logicians to regard PEM as *more* doubtful than PNC.

1011ᵇ23. The formulation of PEM is incautious. Although Aristotle says that, given a predicate *F* and a subject *x*, it is necessary either to assert *F* of *x* or to deny *F* of *x*, he cannot really mean to exclude the further possibilities of (i) making no judgement as to whether *x* is *F*, (ii) performing such non-declarative operations as asking whether *x* is *F* or requesting that *x* be *F*. We must take it that these latter operations are not "in the middle of a contradiction": that is, do not fall between a pair of formulae asserting and denying *F* of *x* (*De Interpretatione* 6. 17ᵃ33–8). What are the conditions under which an operation is in the middle of a contradiction? The answer which suggests itself is: when it involves rejecting as *false* both halves of the contradictory pair. If so, Aristotle's opponent asserts the possibility of its being false both that *x* is *F* and that *x* is not *F*, and thus, by a part of the definition of falsity which not even he will wish to give up, the possibility that *x* is neither *F* nor not *F*. Whether, conversely, Aristotle would accept that his version of PEM entails that it is necessary that *x* is either *F* or not *F* depends on his attitude to the principle that an assertion or denial that is not false must be true;

according to one interpretation *De Interpretatione* 9, while allowing that two singular contradictories about the future cannot both be false, resists the conclusion that (at every time) one of them must be true. Nevertheless, it is likely that Aristotle would have accepted the necessity of '*x* is either *F* or not *F*'; and the still more general form 'either *p* or not-*p*' is implied by *De Interpretatione* 9. 19ᵃ32.

1011ᵇ25. This first argument contains (*a*) a definition of 'true' and 'false', (*b*) an inference from the definition ("so that . . ."), (*c*) the opponent's assertion, (*d*) a suppressed conclusion. Each step calls for comment.

(*a*) "Say that that which is is not" etc.: i.e. say of something which is that it is not etc. "Is" could mean 'exists', 'is so-and-so', or 'is the case' (and "is not" similarly); the last alone makes the definitions cover all truths and falsehoods, as Aristotle's argument requires.

(*c*) "But it is said", sc. by the opponent. The sentence is ambiguous between 'he does not say either that that which is is not or is, or that that which is not is not or is' and 'he denies both that that which is is not or is, and that that which is not is not or is', but the former is strong enough to yield Aristotle's conclusion.

(*d*) The conclusion to be supplied is presumably 'what the opponent says is neither true nor false', which follows validly from (*a*) and (*c*).

(*b*), which I assume means '. . . says of a thing that it is or that it is not . . .', is problematical. It does not seem to assist the argument, for (*d*) follows from (*a*) and (*c*) but not from (*b*) and (*c*). Moreover (*b*) does not follow from (*a*) without the further question-begging assumption that what goes for that-which-is and that-which-is-not goes for everything. For these reasons some editors have preferred to add a 'this' with Alexander —"so that he also who says that *this* [sc. what is in the middle of a contradiction] is or not will have the truth or be in error", which in addition gives more force to "also". Against this reading Ross brought the objection that it does not follow from (*a*) that it must be true or false to say 'is' or 'is not' of what is in the middle of a contradiction, since what is in the middle of a contradiction is precisely neither what is nor what is not. This is an objection which Ross should have brought against the MS. reading. Against Alexander's it is not necessarily effective, because it assumes that the word "this" refers to the subject of the supposed middle operation, the thing said to be neither *F* nor not *F*; whereas the reference might be to the operation itself, which the opponent does suppose to 'be', i.e. (here) to exist. If so, (*b*) would be, not a step in the refutation of the opponent, but an aside to the effect that his thesis is refutable.

Although the argument as a whole is valid, it does not damage the position of the opponent, who has a choice of two replies. (A) Accepting the implication that, if there is a third operation between asserting and

denying, the products of that operation cannot be either true or false, he might postulate a third truth-value for them to take. But this move is plausible only if the third truth-value is 'designated', i.e. if predicating it of a proposition is a way of assenting to that proposition. (B) Alternatively, the opponent might reject premiss (*c*) on the grounds that the statement he produces—say 'Socrates neither is sick nor is not sick'— although different from the denial 'Socrates is not sick' is nevertheless a denial and so does say that that which is not is not. Moreover, this second type of denial would meet the condition for being in the middle of a contradiction, since its truth would involve the falsehood of both 'Socrates is sick' and 'Socrates is not sick'.

At this point it may be worth indicating how Aristotle would have dealt with examples alleged to illustrate the falsity of PEM. (i) 'Socrates is neither sick nor not sick; he is dead': Aristotle says that if Socrates does not exist he is not sick (*Categories* 10. 13^b29–33, but contrast *De Interpretatione* 11. 21^a24–8). (ii) 'This stone is neither just nor not just; for it is incapable of justice.' Aristotle agrees that stones can neither have nor lack justice, but he holds that the false claim that they lack justice must be made in the form 'stones are unjust' or 'stones are not-just'. These claims are false *assertions*, but the *denial* 'this stone is not just' is true (*De Interpretatione* 10. 19^b5–20^a3, *Prior Analytics* I 46. 51^b22–5). (iii) 'The present king of France is neither wise nor not wise; for the expression "the present king of France" is not being, or on the occasion of utterance cannot correctly be, used to refer to anyone': Aristotle nowhere comments on this kind of case, but he might have held that the sentence makes no assertion, or asserts nothing "of one thing", and is therefore no exception to the rule that we must assert or deny one thing of one thing (cf. *De Interpretatione* 8). (iv) 'Socrates neither will be nor will not be sick; his future state of health is not determined.' On one interpretation, *De Interpretatione* 9 makes the lack of inevitability which characterizes most future events a reason for denying present truth to e.g. 'Socrates will be sick' and 'Socrates will not be sick'. But we must notice, first, that even that concession need not be incompatible with the thesis that there is nothing in the middle of a contradiction, if that means that there is nothing whose truth involves the falsehood of both members of a contradictory pair—since nothing suggests that he held such future contradictories to be already *false*; and, secondly, it appears that, if he did make the concession, he thought it compatible with the truth of the disjunctive proposition 'Socrates either will be or will not be sick' (*De Interpretatione* 9. 19^a32), even though these are *not* compatible according to the definition of truth given in the present chapter.

1011^b29. What alters in respect of *F*ness must alter from being *F* to not being *F*, or vice versa. Aristotle distinguishes two ways in which the

relation of being F to not being F might be pictured so as to admit an exception to this principle: as the relation between dark (or black), and pale (or white), which are contraries having "something intermediate between them" (*Categories* 10. 12^{a}9–25), or as the relation between a man and a horse, which are not contraries (*Categories* 5. 3^{b}24–7). Aristotle argues that neither analogy secures the result which his opponent wants. Although the intermediates between dark and pale are possible starting- and stopping-places for change, any intermediate between pale and not pale would not be; and intermediates between non-contraries are never possible starting- or stopping-places for change (e.g. nothing could change into or from a mule). Aristotle adds that intermediates always are possible starting- and stopping-places for change ("in fact it evidently always does" sc. alter), so that the man–horse analogy cannot indicate a "way in which" anything is in the middle of anything.

1012^{a}2. The argument is: thinking something that is true or false is asserting or denying; [no middle operation is asserting or denying]; therefore no middle operation is thinking something that is true or false. As in 1011^{b}25–9, it is assumed (A) that any middle proposition would have to be true or false and (B) that no middle proposition can be an assertion or denial. For the description of truths and falsehoods as "compounding" cf. *Categories* 4. 2^{a}4–10, *De Interpretatione* 1. 16^{a}12–18, E 4. 1027^{b}17–23.

1012^{a}5. Aristotle does not mean that if any middle is true all must be true, but that if any makes sense all must make sense. He derives two consequences. (i) It will make sense to say that a proposition is neither true nor not true, and that one who believes it is neither right nor not right (Aristotle's claim is actually bolder: these things *will* sometimes happen). (ii) There will be a middle between existing and not existing (the reference to coming to be and destruction shows that "that which is" must now be taken existentially). Aristotle does not mean to deny that, even as things are, there is a "kind of alteration apart from coming to be and destruction", e.g. change of colour; he means that there will have to be a new kind in addition, standing in the same relation to coming to be and destruction as change to or from the intermediate between white and not white stands to ordinary changes of colour.

1012^{a}9. For contraries related in such a way that the denial of one implies the other (i.e. contradictory opposites) see *Categories* 10. 11^{b}38– 12^{a}9. Aristotle's thesis is that the propositions:

(*a*)   odd is the contrary of even,

(*b*)   'not odd' implies 'even',

(*c*)   at least one number is neither odd nor not odd,

make an inconsistent triad. The reasoning seems to be: (*a*) and (*b*) show that 'even' may be defined as 'not odd'; by that definition (*c*) is equivalent to

(*d*)   at least one number is neither odd nor even,

which is inconsistent with (*b*); therefore (*c*) is inconsistent with the conjunction of (*a*) and (*b*). This argument begs the question, because (*a*) and (*b*) entail that 'even' is equivalent to 'not odd' only on the assumption that 'odd' and 'not odd' exhaust the field.

1012ᵃ12. The interpretation of this argument depends on the queer phrase "to deny *this* [the middle] in relation to the assertion and denial". (1) Bonitz understands: to deny both the disjunction of middle and assertion and the disjunction of middle and denial. The argument then is: if between '*F*' and 'not *F*' is the middle '*G*', there will be further middles between '*G*' and '*F*' and between '*G*' and 'not *F*', and so *ad infinitum*. (2) A simple emendation, adding '*to*', would give 'to deny this ⟨which is⟩ in relation to the assertion and denial', for which the sense proposed is: to deny the proposition which is middle relative to the original assertion and denial. The argument then is: if between '*F*' and 'not *F*' is the middle '*G*', there will also be the new denial 'not *G*'. (3) A less easy emendation expands '*apophēsai*' ('deny') into '*apophēnasthai*' ('declare'), giving the sense: to declare the middle in both its affirmative and negative forms (cf. *Posterior Analytics* I 2. 72ᵃ11–12). The argument is then the same as under (2). (4) Alexander understands: to deny both the middle taken as an assertion and the middle taken as a denial—that is, the denial of the middle. The argument then is: if between '*F*' and 'not *F*' is the middle '*G*', between that and 'not *G*' will be the further middle '*H*', and so *ad infinitum*. (4) leads to the same result as (2) and (3). But all four of these interpretations face linguistic or textual objections.

"For the substance is something else than it": the new denial (whether 'neither *G* nor *F*', 'not *G*', or '*H*') differs in more than name from what it denies; for 'substance' meaning 'being' cf. Γ 4. 1007ᵃ26.

1012ᵃ15. 'Socrates is not pale' (i) denies only that he is pale, not e.g. that he is medium-dark, and (ii) says no more than what it denies ("its not being is a denial"). So 'Socrates is not pale' is compatible with everything other than Socrates' being pale. So the alleged middle utterance must either be compatible with 'Socrates is not pale' or else entail 'Socrates is pale'. In neither case will it fulfil the condition for being in the middle of a contradiction.

1012ᵃ17. For the two "derivations" of the opponent's opinion cf. Γ 5. 1009ᵃ16–22. "The original step is a definition": cf. Γ 4. 1006ᵃ18–26 and 8. 1012ᵇ5–11.

1012ᵃ24. Anaxagoras' alleged thesis is that it is (not only possible but) necessary neither to assert nor to deny: 'good' is of course a representative for all other predicates. Against the objection that 'neither good nor not good' is itself something true, Aristotle must refer back to 1011ᵇ25–9. "Makes everything true": and false too, *Γ* 8. 1012ᵃ29–ᵇ2.

CHAPTER 8

1012ᵃ29. The theses that everything is true and that nothing is true here appear for the first time "singly", viz. not conjoined with each other, and "about everything", e.g. not limited to things "in process of alteration" (*Γ* 5. 1010ᵃ8). "If the former are impossible . . .": if the unconjoined theses are impossible, so is their conjunction. The argument of 1012ᵇ13–18 could be generalized to prove the converse implication, so justifying "practically the same". The conjunction is equivalent to '∀x∀F(Fx & −Fx)', the strong denial of PNC (*Γ* 4. 1007ᵇ18–1008ᵃ2); its attribution to Heraclitus seems once more to confuse it with the weak denial (*Γ* 3. 1005ᵇ23–5).

Against these new and easy targets Aristotle aims some of the arguments already used in *Γ* 4–7. "We must base discussion on a definition", not, as in *Γ* 4. 1006ᵃ31–ᵇ34 (cf. *Γ* 7. 1012ᵃ21–4), the definition of some specimen "name" chosen by the opponent, but of 'true' and 'false'. This was the procedure employed in defence of PEM (*Γ* 7. 1011ᵇ25–9, 1012ᵃ2–5); in defence of PNC it was previously spurned (*Γ* 4. 1008ᵃ34–ᵇ2). ᵇ13–22 states the argument called *peritropē*; cf. *Γ* 4. 1008ᵃ28–30, *Theaetetus* 170–1. In ᵇ9 the text is uncertain, but not the sense.

1012ᵇ22. "Evidently this alters": Aristotle's doctrine is not unreasonable in holding that truth-values can change, but is unreasonable if it holds that an assertion changes its truth-value when its asserter dies. "If everything is changing", sc. in all respects; see *Γ* 5. 1010ᵃ15–25. "It is necessary that that which *is* alters", i.e. what alters must be something that is; for, Aristotle argues, if it alters from *F* to *G*, there must be some time at which it *is F* and some time at which it *is G* (cf. *Physics* VI 5. 235ᵇ6–30). But the argument fails to show that these times are *stretches* of time, and so does not establish that change implies rest (see also *Physics* VIII 3. 253ᵇ6–254ᵃ1). The "first changer" is God (*Λ* 7); "which is always changing the things that change" refers, presumably, to the outermost sphere of the heavens which, though Aristotle does not here say so, is itself constantly in change (viz. movement, *Λ* 7. 1072ᵃ21–3).

METAPHYSICS BOOK DELTA

INTRODUCTORY NOTE

$\varDelta$ consists of an examination of the different senses—some in technical use by Aristotle, some not—of about 34 words and their cognates. At $\varGamma$ 2. 1003^{b}33–1004^{a}2 the study of the "forms of thing-that-is" and "of thing that is one", including such concepts as *the same* and *similar*, was referred to the "Selection of Contraries". This is perhaps to be identified with a lost book, *About Contraries*, to which there are references in the ancient commentators (see *The Works of Aristotle* translated into English, vol. xii, 109–114), but some of the material may be reused in $\varDelta$ 9–10. $\varGamma$ 2. 1004^{a}10–20 mentioned *plurality, other, dissimilar, unequal, difference,* and *contrariety*; and 1005^{a}12–17 added *complete, prior* and *posterior, genus, form, whole* and *part*. The discussion of all these, as well as *that which is, one*, and *substance*, falls to "one discipline", namely metaphysics (1004^{a}32–3); and all but two of them are treated in ten of $\varDelta$'s thirty chapters. After the examination of axioms in $\varGamma$ 3–8, $\varDelta$ thus comes naturally as a further exercise in primary philosophy. Nevertheless, many have thought that, in Ross's words, the book "is evidently out of place where it is". There are three reasons for this uneasiness. (i) Many of the words discussed in $\varDelta$ are not listed in $\varGamma$ as proper to 'philosophy', although nearly all seem to meet its requirement of ubiquity of application. (ii) Aristotle's references to $\varDelta$, in the rest of the *Metaphysics* and elsewhere, are to "the treatment of the number of ways in which things are called what they are" (or a similar formula, e.g. *E* 4. 1028^{a}4–6); and one later writer lists an Aristotelian work under the same title. *K* 1–8 summarizes *B$\varGamma$E*, in that order. All this suggests a separate origin for the book. (iii) The method of asking e.g. 'how many senses has the word "falsehood"?', rather than e.g. 'how is falsehood possible?' may seem more appropriate to the trainer in philosophical navigation than to the independent explorer. $\varDelta$ may, then, be a manual of separate origin, incorporated into the treatise on 'primary philosophy' by Aristotle himself or an editor.

Some of Aristotle's distinctions are not so much of senses as of criteria, uses or applications of a word (see e.g. $\varDelta$ 1. 1013^{a}16–17 and note, $\varDelta$ 7. 1017^{a}24–7 and note). His own labels for them are of two types, used interchangeably: (i) adverbs 'manyhow', 'twohow', etc., translated 'in a number of ways', 'in two ways', etc., (ii) the noun '*tropos*', translated 'sense' (but 'manner' at $\varDelta$ 6. 1015^{b}33, *E* 1. 1025^{b}15, 'type' at $\varGamma$ 2. 1004^{b}24).

CHAPTER 1

1012ᵇ34. "We call an origin": literally 'origin is called', cf. "Civil interests I call life, liberty, health and indolency of body" (Locke, *Letter conc. Toleration*, ed. Gough, 126). "Point": there is no noun in the Greek, here or elsewhere (except 1014ᵇ8, 1016ᵇ17–31).

1013ᵃ1. Cf. *Physics* I 1, where Aristotle distinguishes between those origins or elements which are "clearest and most intelligible to us", e.g. (commonplace facts about) complex macroscopic objects, and those which are "clearest and most intelligible by nature", e.g. (descriptions of) the components of such objects.

1013ᵃ4. "Some believe it is the heart": among them Aristotle, see *De Generatione Animalium* II 4. 740ᵃ17–19.

1013ᵃ10. The word '*archē*' had two broad meanings in Greek: 'beginning', 'origin', 'starting-point', to which answers the middle voice of the verb, '*archesthai*' (translated 'begin' at ᵃ3 and ᵃ8); and 'rule', 'authority', 'office'—and in the plural often 'officers', 'authorities'—to which answers the active '*archein*'. Aristotle's treatment attempts to relate the two meanings: rulers are authors or initiators of change. A "dynasty" is a type of oligarchy, *Politics* IV 5. 1292ᵇ5–10. The plurals 'dynasties' etc. can, like '*archē*', be used either of a type of government or of the group which so governs: cf. our use of 'the government'. The latter better fits "that at whose decision" (or 'will', '*prohairesis*'), but, perhaps influenced by the former, Aristotle allows himself to say that skills decide to get things changed.

1013ᵃ14. "The point from which one first gets acquainted" with a thing is not the same as "the point from which it is easiest to learn "(ᵃ3–4); for the former is, but the latter is not, "origin of the actual thing". The reference to demonstrations, i.e. things demonstrated, shows that 'getting acquainted' here has the sense 'proving', not 'learning': cf. *A* 3. 983ᵃ25–6. At *Posterior Analytics* I 10. 76ᵇ23–34 a principle is unprovable, a hypothesis provable but accepted without proof; here the words are used indifferently of anything accepted without proof.

1013ᵃ16. "In the same number of ways": i.e. over the same range of application, for Aristotle denies that 'origin' and 'cause' are "indicated by one formula" (*Γ* 2. 1003ᵇ24–5). Even so, from the fact that every cause is an origin it does not follow that the two words apply to the same things, and in fact nothing under 'cause' in *Δ* 2 corresponds with e.g. the second sense of 'origin'.

1013ᵃ17. "Thought" belongs under the fifth sense, for men's thoughts (e.g. that something is attractive) as well as their choices originate

action. "What a thing is for": Aristotle may mean that we *prove* e.g. that Callias is in Thebes by discovering his purpose there (demonstrative 'acquaintance' with a fact), or, more likely, that we *understand* e.g. what a lathe is by discovering its purpose (making ourselves acquainted with what a thing is); in either case the purpose may originate change as well as knowledge or understanding—not changes in the lathe or in Callias' situation in Thebes, but the changes whereby the lathe came to exist (it was made to serve its purpose) and Callias came to be in Thebes (he went there for a purpose).

CHAPTER 2

Except for a few very minor divergences this chapter is identical with *Physics* II 3. 194ᵇ23–195ᵇ21; *A* 3. 983ª33–ᵇ1 refers for an adequate discussion of cause to "the books about nature", not to *Δ*. *Physics* II 7. 198ª14–16 implies that any true answer to the question 'why?' gives a cause (*aitia, aition*). Hence 'explanation' or 'reason' is often closer to the sense of the Greek words; but an *aitia* or *aition* is generally a reason for being ('ratio essendi') not a reason for thinking ('ratio cognoscendi', but see e.g. *E* 2. 1026ᵇ24–31).

The traditional names for Aristotle's four causes are material, formal, motive (or efficient), and final. This fourfold classification reappears at *A* 3. 983ª24–ᵇ1. The material cause is omitted at *De Anima* II 4. 415ᵇ8–10, and replaced at *Posterior Analytics* II 11. 94ª20–36 by "that which being so, it is necessary for this to be", i.e. a necessitating condition (Aristotle's example is 'why is the angle inscribed in a semicircle a right-angle? because it is half two right angles'). *Λ* 4. 1070ᵇ11–30 omits the final cause and splits the formal into form and lack (sc. of form). At *Physics* II 7. 198ª24–33 it is argued that formal, final, and motive causes often "come to the same thing". What makes Socrates two-footed is (i) his being a man (formal cause), (ii) his father, who must have been a man (motive cause); these are "the same in form", sc. both men although not the same man (cf. *Λ* 4. 1070ᵇ30–5). Formal and final cause may be even numerically the same, for according to Aristotle a natural object has its nature or substance only when its development is complete (see *Δ* 4. 1015ª3–5) and natural development is not just towards but 'for' completion or fulfilment (the fullest argument for this is *Physics* II 8; cf. also *De Anima* II 4. 415ᵇ15–21, *De Generatione et Corruptione* II 9. 335ᵇ6, *H* 4. 1044ª36–ᵇ1).

Aristotle's discussion of cause is no longer influential, chiefly because he does not raise Hume's problem as to the difference between 'post hoc' and 'propter hoc'. That problem treats causes as anterior events, but (i) final causes, if events, occur later than their effects; and (ii) although

a final cause may be an event or outcome ('for the sake of his health') it may also be a beneficiary ('for his sake'—Aristotle makes this distinction at *De Anima* II 4. 415ᵇ20–1), and although a motive cause may be an event (*Posterior Analytics* II 11. 94ᵃ36–ᵇ1 "why did the Athenians get involved in the Persian Wars? . . . because they raided Sardis with the Eretrians") it may also, as mostly in the present chapter, be an agent.

1013ᵃ24 (*Physics* II 3. 194ᵇ23). "Constituent out of which" = material cause. Bronze is the cause of a statue in the sense of being cause of the statue's having such and such properties: cf. *Z* 17. 1041ᵃ10–11 ' "why?" is always looked for in this way, "why does one thing hold good of some other thing?" '. *De Anima* III 5. 430ᵃ10–25 shows what Aristotle has in mind: if a statue is of—i.e. manifests—a brownish colour, that is caused by (*a*) its bronze, as matter, and (*b*) the light shining on it, as external (*Λ* 4. 1070ᵇ22–3) origin of change. The statue's matter has (*Z* 15. 1039ᵇ 29–30), or even is (*De Anima* II 1. 412ᵃ9), the capacity to acquire and manifest varying properties; it is therefore a kind of origin of change (*Δ* 12. 1019ᵃ19–23), but passive, inferior, and internal. Things immaterial in the modern sense may still have matter, i.e. subject-matter or materials, as vowels and consonants ("elements" 1013ᵇ17) are the materials from which we make up syllables, and hypotheses the materials (ᵇ20) from which we get conclusions.

1013ᵃ26 (*Physics* II 3. 194ᵇ26). "Form and pattern" = formal cause. It is not uncommon for Aristotle to write as if a thing's form could be identified with the formula which expresses it (cf. *Δ* 6. 1015ᵇ25). He had two uses for the notion of formal cause, which he did not distinguish. (i) He appears to have assumed that being *F* causes a thing to be *G* given only that *F*s are always or usually *G*s, or in other words that the conjunction of *F*ness and *G*ness is not a coincidence (see notes on *Δ* 30. 1025ᵃ14); thus *Physics* II 3. 195ᵇ23 tells us that the intermediate cause of some particular man's building a house is his being a housebuilder. (ii) Besides citing forms as causes of the properties of individual things, Aristotle more plausibly casts them as possible answers to general questions like 'why do housebuilders build houses?' 'why do octaves span eight notes?' The first of these is admittedly more likely to ask for a final cause but the second, if about something changeless, can be answered only by saying what an octave is: " 'why?', in the case of changeless things, reduces in the end to 'what is it?' " (*Physics* II 7. 198ᵃ 16–18, cf. *A* 3. 983ᵃ28).

1013ᵃ29 (*Physics* II 3. 194ᵇ29). "First origin of alteration or rest" = motive cause. "First" suggests that Aristotle does not regard means as motive causes: cf. our distinction between agent and instrument, and ᵃ36 "what effected the change was something else", sc. than the means.

"Origin of alteration or rest", cf. 1013ᵇ25, *E* 1. 1025ᵇ20–1: when a heavy body falls, its 'nature' is cause of the downward motion; when it reaches the ground, the ground causes it to continue thereafter at rest. Both causes must, according to Aristotle's mechanics, be operative at every moment of the state they cause.

1013ᵃ32 (*Physics* II 3. 194ᵇ32). "Thing's fulfilment" = final cause. There is a well-known ambiguity in this notion, which Aristotle brushes aside at ᵇ27–8 with the remark "let us assume that there is no difference in calling it good or imagined good". At *Posterior Analytics* II 11. 94ᵇ8–26 he offers 'in order to be healthy' as the answer to two questions: 'why does one take a walk?' and 'why should one take a walk after dinner?' But the truth-conditions of these answers are different: the answer to the second question will be true only if walking is good for health, the answer to the first only if the walker thinks ("imagines") it good. Aristotle leaves it unclear in which of these senses it may be asserted that "nature works for the sake of something" and "because it is better so" (*Physics* II 8. 198ᵇ17): on the one hand nature does not deliberate (ib. 199ᵇ26–8), but on the other she does make mistakes (ib. 199ᵃ33–ᵇ1). The difference between 'good' and 'imagined good' is discussed in *Nicomachean Ethics* III 4.

1013ᵃ35 (*Physics* II 3. 194ᵇ35). At ᵃ35 "as a means to" is literally 'in the middle of' (so translated in *Γ* 7), showing that Aristotle has in mind a 3-term relation in which *B* is the means by which action or thing *A* achieves fulfilment *C*. *A*, then, is the "something else" which effected the change. A doctor (*A*), for instance, employs instruments or performs operations (*B*) in order to secure his patient's health (*C*). In this situation it will be true to say both (i) that *B*, as well as *C*, is a final cause of *A*— a fulfilment, although not a "complete" fulfilment (*Nicomachean Ethics* I 7. 1097ᵃ25–8)—and (ii) *C* is the final cause of *B*, as of *A*. Evidently Aristotle's point is (i).

1013ᵇ3 (*Physics* II 3. 195ᵃ3). "Not coincidentally": see 1013ᵇ28 ff. Aristotle's assumption that the same thing cannot have multiple causes in the same "sense" much underrates the complexity of the concept of cause. In practice he is not so rigid: see 1013ᵇ11–16 and the notion of a joint-cause or contributory cause, e.g. at *De Anima* II 4. 416ᵃ14. "Things may also be causes of one another": cf. *A* 3. 983ᵃ31–2.

The last sentence of the paragraph does not illustrate Aristotle's contention that the *same* thing may be the cause of contraries, for which he must rely on the first half of the penultimate sentence. He is really making two concessions: (i) that one cause can have different results on different occasions, as when the helmsman causes shipwreck by his absence or non-shipwreck by his presence; and (ii) that one result can

have different causes even on the same occasion, as when the motive cause of shipwreck is alternatively given as the helmsman's absence or simply as the helmsman. "Hold responsible" translates the verb '*aitiasthai*', from the root of '*aitia*' but usually meaning 'blame'.

1013ᵇ16 (*Physics* II 3. 195ᵃ15). This sums up the first four paragraphs.

1013ᵇ28 (*Physics* II 3. 195ᵃ26). The rest of the chapter deals with a different classification of senses of 'cause', the previous senses (ᵇ8, ᵇ16) being now referred to as forms. Aristotle's procedure is puzzling. Since the same individual might be both doctor and man-of-skill (the latter being wider than the former) and since, in spite of that, they are said to be causes of health in different senses or ways, it must be that the primary cases of cause are *kinds* of thing, not individuals, and the primary cases of causal statement are class-relational, not singular. Even so, it is odd to say that 'doctors cause health' and 'men-of-skill cause health' use 'cause' in different ways, or even mention different kinds of cause. Evidently Aristotle's meaning is that the predicate 'cause health' (though doubtless univocal) *attaches* in different ways to the subjects 'doctors' and 'men-of-skill': for causing health indicates what it is to be a doctor but not what it is to be a man-of-skill (see Δ 18, E 2. 1026ᵇ37–1027ᵃ2).

"What includes any of the particular causes", i.e. their genera (in Δ 23 and 26 the verb is translated 'contains'). Ross's translation construes differently: "what includes so-and-so [is cause] of the particular [effects]"; and this must be right if the phrase is to have the same meaning as the variant Greek at *Physics* 195ᵃ32. But taking the *Metaphysics* phrase on its own, its word-order favours the version adopted.

1013ᵇ34 (*Physics* II 3. 195ᵃ32). Both doctors and men-of-skill are causes of health in their own right. and so not coincidentally (Δ 18. 1022ᵃ 25–9). In showing that Polyclitus is coincidentally cause of a statue Aristotle uses a form of argument which appears to license the inference 'men are animals: being Polyclitus is a coincidence for a man; therefore Polyclitus is coincidentally an animal' (cf. *Prior Analytics* I 11. 31ᵇ12–20). If, on the other hand, he had argued from the converse minor premiss 'being a statuemaker is a coincidence for Polyclitus', that would have licensed the equally unwelcome inference 'statuemakers cause statues; it is a coincidence for a man-of-skill to be a statuemaker; therefore men-of-skill cause statues coincidentally' (cf. *Prior Analytics* I 9. 30ᵃ37–ᵇ1). This difficulty is not to be avoided by replacing 'Polyclitus' with a general term such as 'the pale'.

In citing man and animal as "including" Polyclitus Aristotle (i) overlooks the difference between this relationship, of class-membership, and that between doctor and man-of-skill, which is of class-inclusion (cf. the two uses of 'particular' in 1014ᵃ17 and 1014ᵃ21); and (ii) ignores the

objection that man and animal include not only the coincidental cause Polyclitus but also the non-coincidental cause statuemaker. The pale and the artistic are "more remote" causes than Polyclitus evidently because, unlike him, they cannot directly coincide in *statuemaker*; cf. *Γ* 4. 1007ᵃ33–ᵇ18.

1014ᵃ7 (*Physics* II 3. 195ᵇ3). The classification into proper and coincidental causes is exhaustive, and "apart from" introduces a cross-classification; cf. 1014ᵃ19–20, *E* 2. 1026ᵇ1. It is not really necessary to bring the *Metaphysics* text, as Jaeger does, into line with the *Physics* by dropping "apart from". If we do, the sense is: 'All of them, those so called both properly and coincidentally, are in some cases so called as being capable, in others as actually functioning.'

1014ᵃ10 (*Physics* II 3. 195ᵇ6). The maker of bronze causes matter either (Ross) in the sense that his product is material for someone else, or in the sense that he produces a certain kind of matter (out of other kinds).

1014ᵃ15 (*Physics* II 3. 195ᵇ12). It is difficult, but not important, to get six headings out of Aristotle's list (note that his words for 'either' and 'or' are the same). The distinction between functioning and capacity cannot apply to descriptions such as 'Polyclitus' and 'man'. Aristotle's point about simultaneity seems to be: *A* is doctoring *B* just so long as *B* is being healed by *A*, but it is not true that *A* is a doctor just so long as *B* is a patient. But this contrast has nothing to do with the difference between capacities and the exercise of capacities. Ross's explanation of 'particular' in ᵃ21 is probably correct: what is functioning *is* particular, in the sense that it is always appropriate to ask the question 'which doctor?' when someone says 'the doctor is healing' but not always when someone says 'the doctor is a healer'. This takes 'particular' in the sense 'individual', but ᵃ17 (cf. 1013ᵇ34) used it in the sense 'specific' to distinguish e.g. statuemakers from the wider class of men-of-skill.

CHAPTER 3

1014ᵃ26. The material substances which Aristotle believed to fit his first sense of 'element' are earth, air, fire, and water (the "bodily elements" or "simple bodies" discussed in *De Caelo* III and IV). The elements of modern chemistry were originally so called in the same sense, but are now known, of course, to "divide further into other things differing in form": e.g. not all parts of oxygen are oxygen. Elsewhere (e.g. *Physics* I 6. 189ᵇ16) Aristotle sometimes names matter, form, and lack (of a form) as the elements of substances. Elements may be divisible, as vowels, or indivisible, as (spoken) consonants.

1014ᵃ35. The "diagrams" are solutions to geometrical problems, hence perhaps geometrical theorems in general (see *B* 3. 998ᵃ25 and Ackrill's note on *Categories* 12. 14ᵃ26). "Syllogisms out of three terms": as opposed to sorites (*Prior Analytics* I 25. 42ᵇ2–3). For this use of 'element' see *B* 3. 998ᵃ26 and Ross's note on that passage; also Heath, *Mathematics in Aristotle*, 205–6, Proclus, *In Euclidem* I, ed. Friedlein, 72. Euclid's book was, of course, called *Elements*.

1014ᵇ3. Ross refers to *Topics* IV 1. 121ᵇ11–13, "in all these cases the element is that the genus is spoken of more widely than the form and the differentia": we might say 'the fundamental thing'. From such general *propositions* Aristotle passes to "universal things", i.e. general *concepts*, which are elements because widely applicable. His mention of points perhaps adverts to the view, not shared by himself (*Physics* IV 8. 215ᵇ18–19), that lines, planes, and solids are composed out of points. "The things termed genera" are apparently the categories (cf. *Δ* 6. 1016ᵇ33–4), which are indivisible and have no formula because they cannot be analysed into genus and differentia. Often, of course, Aristotle applies the word 'genus' to narrower classes such as *animal*, but even such genera are "more" elementary than differentiae because, as Aristotle thinks, a differentia that is properly given "implies the genus"—so that e.g. two-footed non-animals such as ladders will have to be two-footed in a derivative sense (cf. *Categories* 3. 1ᵇ16–17, *Topics* I 15. 107ᵇ19–26, VI 6. 144ᵇ12–30).

1014ᵇ14. An element is an origin (*A* 3. 983ᵇ11), but a constituent, not external, origin (*Δ* 4. 1070ᵇ22–6). *B* 3. 998ᵃ20–ᵇ14 raises the question which of the two kinds of elements of bodies distinguished in this chapter—genera and simple parts—are the origins of things.

CHAPTER 4

1014ᵇ16. The Latin 'natura' is cognate with 'nasci', 'to be born', but Aristotle's Greek word '*phusis*' does not usually mean 'birth' ("the coming to be of things that grow"). Even the etymology he proposes connects it rather with growth, his word for 'grow' being '*phuesthai*' which, unlike '*phusis*', has the '*u*' long. Modern opinion rejects this etymology and traces '*phusis*' from a root '*phu-*' meaning 'be', as in the Latin 'fui' (see Ross; also C. S. Lewis, *Studies in Words*, 34).

1014ᵇ18. When a doctor alters his patient by curing him, the change is not in the doctor. When a doctor cures himself, the change is in himself but not *qua* himself, since doctors are not restricted to curing themselves.

Growth, on the other hand, is a change which a living thing works in itself *qua* itself (a self-change). For instance, a man can grow his own fingernails but cannot grow somebody else's; the growth of his finger-nails is a "change in a naturally existing thing" (he is changed) which is a "constituent of the thing" (he effects the change) "*qua* itself" (nothing else can effect the change). Aristotle confusingly uses the same word "in" first governing the thing changed and secondly, in the phrase 'holds good in' (here and elsewhere translated "is a constituent of"), governing that which effects the change (cf. *E* 1. 1025ᵇ20–1). Nature is "what makes" it that (literally 'whence') changes are self-changes: that is, it is because a man has a nature' and a diary does not that the man grows his fingernails but the diary does not grow its daily entries. Not all changes in a man are self-changes: Aristotle distinguishes those which are as "pri-mary". The same sense is discussed more fully at *Physics* II 1. 192ᵇ8–33, which concludes "the things which have this kind of origin (sc. of change) possess a nature". In ᵇ20–6 Aristotle seeks to explain why growth is a self-change even though something outside contributes to it, e.g. food or the pregnant mother. His solution is that the change is due to a form which is common to the growing thing and (in the case of food, after assimilation) the outside agent. His words for 'assimilation' ('*sum-phusis*') and 'adhesion' ('*prosphusis*', *Physics* V 3. 227ᵃ17) have the appear-ance of compounds of '*phusis*', but may be more closely tied to the notion of growth than that parentage would allow. For the requirement that assimilated things be continuous, i.e. merged or fused, see *K* 12. 1069ᵃ 5–12.

1014ᵇ26. This is the sense in which a thing's nature is its matter. In ᵇ27 one MS. reads 'a *not* naturally existing thing', which better fits Aristotle's example of the statue, but is absurdly restrictive. Ross suggests that the statue is counted a naturally existing thing because it is made of natural materials. The specification which Aristotle needs is not 'naturally existing thing' but 'perceptible material object' (see note on 1015ᵃ13).

"Unstructured": the meaning may be (1) that bronze is not the sort of thing to have or lack a shape, or (2) that a piece of bronze can change its shape without limit and can be of any shape and size, or (3) that a piece of unworked bronze commonly has no very regular shape (so Ross; cf. 'a shapeless lump'). Aristotle's example is wrong if he denies that wood is "subject to loss of its own capacity", since its powers are permanently destroyed by e.g. burning. Perhaps he means that the wood in a wooden artefact does, as a matter of fact, retain the powers it possessed before being worked; cf. ᵇ31–2 "the first (i.e. initial) matter being con-served". If so, his point would be that wood is the nature of e.g. a walking-stick but not of e.g. a newspaper. But in that case it is not, as he says, in the same sense that elements are natures; for e.g. water does lose its

power of quenching thirst when compounded into sulphuric acid, even
though, as Aristotle thinks, the water itself is "conserved".
   On this sense of '*phusis*' cf. *Physics* II 1. 193^a9–30.

1014^b35. The substance *of* a thing is its essence. Aristotle takes
Empedocles to be rejecting, in the modern empiricist manner, the
notion of 'real' essence. Having defined nature (= matter) and nature
(= essence) in terms of naturally existing things, Aristotle now dis-
concertingly defines 'naturally existing' in terms of matter and form.
The latter definition is inadequate, since even if naturally existing things
are to include artefacts they cannot be meant to include e.g. arguments,
which are nevertheless "made up of" form and (subject-) matter (see
note on 1015^a13). Aristotle should have specified perceptible matter
(cf. *Z* 10. 1036^a9). For the two kinds of "first matter" see "first genus"
and "last form" at *Δ* 24. 1023^a27–9.

1015^a11. It is not clear whether Aristotle means (1) in addition to the
substances (= essences) *of* e.g. men, men themselves, as *being* substances,
are natures; or (2) in addition to substances which exist naturally, arti-
ficial substances are also called natures; or (3) 'nature' is also used as
a collective name for all substances taken together.

1015^a13. At 1014^b35 nature was the substance of "naturally existing
things"; now it is "the substance of those things that possess an origin
of change in themselves *qua* themselves". The new locution implies a
definition of 'naturally existing things' which, though plausible in itself
and in accord with 1014^b19, differs from that needed at 1014^b27 (viz.
'perceptible material object') and from that given at 1015^a6–7 ('what is
made up of matter and form'). In the penultimate sentence Aristotle
attempts to relate his fourth and first senses to his fifth, and in the last
sentence the fifth and third senses are identified.

CHAPTER 5

This chapter does not explain the important connections between
necessity and essence (*Posterior Analytics* I 4. 73^b25–74^a3) and between
necessity and regularity (*E* 2. 1026^b27–33). Nor does it accommodate
the apparently Aristotelian sense 'inevitable' (*E* 3. 1027^b10–11, cf. *De
Interpretatione* 9. 19^a23–7). There is an interesting discussion of necessity
at *De Generatione et Corruptione* II 11.

1015^a20. "Joint-cause": i.e. necessary but not sufficient condition.
Aristotle would not deny that e.g. drinking bad water may be necessary
(indispensable, needful) for contracting typhoid, or sailing to Paros for

being captured by pirates; his point is that neither of these bad things would be called necessary *tout court*.

1015ª26. Perhaps it would be better to translate '*bia*' here by 'duress'; for compulsion is not *contrary* to change in accordance with choice and inclination, since one may be compelled to do what, given the choice, one would anyhow wish to do. Compulsion and inclination are, however, different, which is enough to explain why, although a man may be dissuaded from doing what he is inclined to do, he may not be dissuaded from doing what he is compelled to do.

1015ª33. The definition of 'necessary' as 'not possible (*endechomenon*) that otherwise' may be compared with the definition of 'possible' (*dunaton*) as 'not necessary that not' at *Δ* 12. 1019ᵇ31–2. Compulsion requires necessity, in this sense, plus a contrary inclination. In the first sense of 'necessary', i.e. 'needful', if (i) bringing it about that *p* is necessary in order that *q*, then (ii) it is not possible that (*q* and not-*p*), which is equivalent to (iii) it is not possible that not (if *q*, *p*). Aristotle omits the last stage in this analysis, thus failing to exhibit his first sense as a case of 'not possible that otherwise'. Even the completed analysis gives the sense only of expanded statements such as 'it is necessary to breathe in order to live'; the unexpanded statement 'it is necessary to breathe' cannot be analysed in terms of possibility, if the 'necessary' in it means 'needful'.

Demonstrations, i.e. deduced conclusions, are "demonstrated baldly" when deduced from necessary premisses; if the premisses are non-necessary or false, the conclusion is demonstrated *ad hominem* (cf. *K* 5. 1062ª2–3) or hypothetically (cf. *Prior Analytics* I 23. 40ᵇ23–5, 44. 50ª16–28, *Posterior Analytics* I 3. 72ᵇ13), and demonstrated to be "necessary certain things being so" not "necessary baldly" (*Prior Analytics* I 10. 30ᵇ31–3, 38–40, *Posterior Analytics* II 5. 91ᵇ14–19, 11. 94ª21–7). Aristotle's thesis that what follows from necessary premisses cannot be otherwise, i.e.

$$\square \, (p \rightarrow q) \rightarrow (\square p \rightarrow - \diamond -q)$$

is part of every standard system of modal logic; compare the related theses at *Δ* 12. 1019ᵇ22–7, *Θ* 4. 1047ᵇ14–16, *Prior Analytics* I 15. 34ª5–7.

1015ᵇ9. That simples cannot be in more than one state does not prove that they are the fundamentally necessary things, for according to *Θ* 10. 1051ᵇ9–17 some composites also are "incapable of being otherwise". Aristotle must be relying on his contention that only in the case of simples is nothing the cause of their necessity, i.e. is their necessity indemonstrable. In the last sentence he asserts that what is done under compulsion is not done invariably: the argument seems to be that if *x* is compelled to do *A*, it is possible for *x* to do *A* but also natural and therefore possible for *x* not to do *A*.

CHAPTER 6

Another discussion of the senses of 'one' is to be found in *Metaphysics I* 1. See also *Physics* I 2. 185^{b}5.

1015^{b}16. These notes will examine three questions: (A) how are the items listed as examples of coincidental unity meant to be divided up? (B) in what sense are they one? (C) in what sense is their unity co-incidental? (D) discusses the case of "something universal".

(A) ^{b}17–18 do not mean that 'Coriscus and the artistic and artistic pp. 221–2 Coriscus' are three examples of coincidental unity (for Coriscus at least is a unity in his own right); nor that they are a single example (for the subsequent sentences deal only with pairs of expressions). This leaves three possibilities. (1) Three paired examples are to be understood, Coriscus and the artistic, Coriscus and artistic Coriscus, the artistic and artistic Coriscus. (2) Since the last of these pairs is not further discussed, it is more likely that only the first two are intended. (3) It is also possible that while 'Coriscus and the artistic' is the first example, 'artistic Coriscus' on its own is the second—or rather a repeat of the first. This seems to be the interpretation of Alexander, and is implied by the modern punctuation of the OCT. It also makes good sense of the parenthesis at ^{b}18–19, which would then be elliptical for 'for it is the same thing to say "Coriscus and the artistic are one" and "artistic Coriscus is one" '. (Alexander explains this parenthesis with the words 'for it is the same thing to say "Coriscus and artistic [are] one" and "the artistic coincides in Coriscus" and "Coriscus is artistic" '; and in the OCT Jaeger, presuming that Aristotle's explanation was the same, *inserts* the word for 'one' after the first 'artistic', giving 'for it is the same thing to say "Coriscus and the artistic [are] one" and "Coriscus [is] artistic" '—elision of the verbs would be regular Greek. But it is not necessary to suppose that Alexander found 'one' in his text of Aristotle; and in any case its presence is less apt in Aristotle's explanation than in Alexander's.) Against this third interpretation stand (i) the oddity of introducing, among statements of coincidental unity having paired subjects, one statement having an unpaired subject, and (ii) the fact that ^{b}23 discusses the unity of artistic Coriscus *with* Coriscus. On the other hand, the second interpretation makes the parenthesis still more elliptical, meaning 'for it is the same thing to say "Coriscus and the artistic are one" and "Coriscus and artistic Coriscus are one" '. In either case it seems that Aristotle gives us five examples of coincidental unity:

(a)   Coriscus and the artistic (? = artistic Coriscus)
(b)   Coriscus and artistic Coriscus;
(c)   the artistic and the just;

(*d*)   artistic and just Coriscus (the artistic Coriscus and just Coriscus);

(*e*)   a man and an artistic man.

(B) An analysis of unity may include answers to two types of question (see K. R. Popper, 'The Principle of Individuation', *Proceedings of the Aristotelian Society*, supplementary volume, 1953, 100–1): type 1 questions are of the form 'what are the conditions under which *x* and *y* make up one thing, or under which the combination of *x* and *y* is singular and not plural?'; type 2 questions are of the form 'what are the conditions under which *x* and *y* are one and the same thing, and not different things?' In the paragraph following that about coincidental unity Aristotle addresses himself to the type 1 question: 'is *z*, combined out of *x* and *y*, one thing or many?' It appears at first as if the discussion of coincidental unity deals with type 2 questions: for e.g. 'Coriscus' and 'the artistic' can be used as designations of the *same* thing, and Aristotle actually slips into talking of sameness at ᵇ27. But the appearance is misleading. ᵇ23 says that the artistic and Coriscus are one "because one coincides in the other"; these items, then, are regarded by Aristotle as *different* things, whose relationship of coinciding combines them into a kind of unity. In ᵇ24–5 the combined items are verbal expressions, "portions in the formula", but Aristotle is being careless: it is primarily things, not words, which are said to coincide (see e.g. *Γ* 4. 1007ᵃ21–2, "it is necessary for them to maintain that all things are coincidences"). Thus his theory is that just as the expression 'the artistic Coriscus' is a complex of the words 'the artistic' and 'Coriscus', so what it designates is a complex of two non-linguistic items, the artistic and Coriscus. When Coriscus is artistic, these items make up a single complex; otherwise they remain distinct. Yet—and here type 1 and type 2 questions about unity become confused together—Coriscus and the artistic can also be regarded as the same item, owing to the ambiguity of the expression here literally translated 'the artistic'. At *Z* 6. 1031ᵇ22–8 Aristotle tells us that "things spoken of coincidentally like the artistic and pale . . . signify in two ways; . . . both that in which pale coincides and the coincidental . . . affection". Coriscus and the artistic are the same in the first of these senses—he is an artistic (thing). Aristotle holds that this sameness is to be explained by the fact that the artistic in its other sense, viz. the affection or property of being artistic, coincides in Coriscus. Hence his embarrassment over examples (*b*), (*d*), and (*e*), for e.g. the pair of expressions 'Coriscus' and 'artistic Coriscus' cannot be construed as picking out two *different* items; only "one *portion* of the [latter] formula" designates a second item—the property of being artistic—capable of coinciding in Coriscus.

(C) By exploiting this ambiguity Aristotle is able to maintain that the artistic Coriscus is a unified complex in which Coriscus—somehow detached from his artistry—is a simple part. In what sense is this unity

coincidental? (1) According to the official definition at E 2. 1026^{b}31–3 'coincidentally F' means 'F but neither always nor usually F'. If that is Aristotle's meaning here, his examples are ill-chosen, for (i) the pale Coriscus—if not artistic Coriscus—might be a unity throughout Coriscus' life, and (ii) the unity of e.g. a bundle, which is one in its own right (1016^{a}1), might be temporary. (2) There is no indication that artistic Coriscus is one in a derivative sense of 'one' (see 1016^{b}6–8). (3) He is not non-necessarily one, if 'non-necessarily' means 'non-analytically'. For it is an analytic truth that every (single) thing is one thing, and Aristotle's theory offers no reason for denying that truth in the case of non-linguistic complexes. (4) Such complexes are, however, non-necessarily one, if 'non-necessarily' means 'non-essentially'. For although the unity of artistic Coriscus is a condition of his being artistic Coriscus, it is not a condition of his existence. If the elements designated by 'artistic' and 'Coriscus' become dissociated, the artistic Coriscus will not himself cease to exist, although he will cease to be artistic. Thus the artistic Coriscus is non-essentially, though analytically, one just because the artistic Coriscus is non-essentially, though analytically, artistic. Aristotle is right to contrast this case with the unity of such things as a bundle and a leg, which are essentially one. Nevertheless his reasons for classifying the artistic Coriscus and the rest as non-essential unities would have emerged more sharply had he contrasted them with essential unities also designated by complex verbal expressions, such as 'two-footed animal', whose parts stand for items that "make up one thing" (*De Interpretatione* 11. 20^{b}15–19, cf. Γ 4. 1007^{b}10, Z 12. 1037^{b}10–12).

(D) The case of "something universal". The truth-conditions for the unity of the just and the artistic are not that justice be artistic or artistry just but that some third thing (in ^{b}22 Aristotle assumes, some substance) be both just and artistic. Does the same apply to (e)? Aristotle offers two analyses: either the artistic coincides in man, or both coincide in Coriscus. If the latter, two modes of coincidence have to be distinguished, for (i) man is not a "state or affection" of Coriscus, but his form, and (ii) man coincides essentially in Coriscus. Usually Aristotle prefers the former alternative, even though it implies the identity of the form man with each individual man (see notes on Γ 4. 1007^{a}20).

1015^{b}36. A preliminary comment. It is analytic that everything is one something: a plank is one plank, a bundle of planks is one bundle, a consignment of unbundled planks one consignment. Most things are also (made up of) more than one thing: one plank is more than one molecule, one argument more than one proposition. At 1016^{a}14 ("both one and not one") Aristotle seems to acknowledge that the same F can be one F but many Gs; at I 2. 1054^{a}13–19 ("being one does not predicate anything else in addition to being each thing") he implies also that

everything is one something. On the other hand, the present paragraph tells us that a collection of planks is one only if the planks are tied or glued together or otherwise continuous. Aristotle also says that some things are *more* one than others, e.g. a shin than a leg. These remarks appear vulnerable to the criticism of Frege (*The Foundations of Arithmetic*, 29): "The Number 1, or 100 or any other number, cannot be said to belong to a pile of playing cards in its own right, but at most to belong to it in view of the way in which we have chosen to regard it; and even then not in such a way that we can simply assign the number to it as a predicate. What we choose to call a complete pack is obviously an arbitrary decision, in which the pile of playing cards has no say. But it is when we examine the pile in the light of this decision, that we discover that we can call it two complete packs. Anyone who did not know what we call a complete pack would probably discover in the pile any other Number you like before hitting on two."

In this paragraph Aristotle mentions, perhaps intentionally, more than one definition of 'continuous'. The Greek word, literally 'fused' (see Δ 23. 1023ᵃ21–3), is defined at *Physics* V 3. 227ᵃ11–12: "I say that a thing is continuous when the boundaries at which each of the two [parts] are in contact become one and the same and, as the name itself signifies, fuse". This definition is echoed in the distinction at 1016ᵃ7 between 'continuous in its own right' and 'in contact'; but at ᵃ1 a bundle, whose parts are merely in contact, is called continuous. ᵃ5 interposes yet a third definition: "that whose change in its own right is one and cannot be otherwise". A thing makes "one change" (i.e. movement) when all its sized parts move simultaneously (this, not 'instantaneous', must be the meaning of "indivisible in respect of time"), i.e. when it is rigid. According to ᵃ9–10 some non-rigid things (which "have a bend") are to be included among the continuous. Hence being restricted to one change, i.e. being rigid, must differ from being restricted to one change in its own right, which is the new definition of 'continuous'. But Aristotle gives no rules for distinguishing these cases. He goes on to pronounce the rigid "more one" than the flexible, and the straight than the bent. It is hard to see what arguments would count for or against these proposals, but we can certainly object to his connection between them; for straight things can be flexible and bent things rigid.

With this paragraph cf. *I* 1. 1052ᵃ19–21.

1016ᵃ17. Although Aristotle defines, in this paragraph, a sense in which e.g. a pane of glass and a pond of water would be one, his examples predicate 'one' of the materials themselves—water, wine, juice, etc. These are divided into two groups: "first" materials which are "perceptually indivisible", i.e. at the macroscopic level homogeneous (wine and water); and materials whose "last" or "ultimate" subject is one (the

repetition of wine shows that at its second mention it, and therefore juices, belong in the latter group with meltables). A thing's "subject" is its matter (material, substratum), and a "last subject" is an element (Δ 3. 1014ᵃ26–35); cf. Δ 24. 1023ᵃ26–9 where, reversing the roles of 'first' and 'last', Aristotle describes the element in a non-compound body (or perhaps in any body) as "first genus" of that body's matter. If we are to take the definition in the opening sentences as applying to both these kinds of matter, first and last, Aristotle's contrast will be between a body made of homogeneous material, which is one because its *first* subject is undifferentiated in form, and a non-compound body, which is one because it contains only one *last* subject or element, and elements must be un-differentiated in form. The latter of these senses of 'one' implies the former, but not vice versa. There are, however, two difficulties with this account. In the first place, *Meteorologica* IV (which may, however, not be by Aristotle) describes some juices and meltables as compound; e.g. some wines are mixtures of water and earth (IV 7. 384ᵃ3–5, 10. 388ᵃ34– ᵇ11, but contrast 5. 382ᵇ13, 10. 389ᵃ10), and oil is a mixture of water and air (IV 7. 383ᵇ23, 384ᵃ15, 10. 388ᵃ32). Secondly, the word 'same' in ᵃ23 suggests that he is saying that juices and meltables have some element *in common*, and so are one collectively, not severally. If so, the paragraph shifts from a type 1 to a type 2 criterion of unity: water is one (single) because homogeneous, oil and wine are one (the same) because they share something homogeneous, viz. an element.

1016ᵃ24. In the two preceding paragraphs Aristotle has mainly dis-cussed conditions under which x and y make up one thing. Now he turns to the type 2 question 'are x and y one and the same thing?'; a horse and a man, for instance, are one and the same living thing but do not necessarily *make up* any single thing, e.g. an equestrian team. On the statement that 'one in matter' and 'one in genus' are "much the same sense" cf. Δ 28. 1024ᵇ9. In the second sentence the text is corrupt but the general sense certain. "The genus above is called the same": i.e. x and y are the same G if both are F and G is the genus of F. "If they are the last forms of the genus" seems to stipulate (i) that 'x' and 'y' mark places for form- (i.e. species-) descriptions rather than proper names and (ii) that the species be the *infimae species* of x and y. It is not clear why either of these conditions is necessary. "That which is further above these" may be a gloss, and must in any case explicate "the genus above", sc. G. If "these" are the last forms, i.e. x and y, "further above" must mean 'at one remove above'. The Greek word, the comparative of 'above', need not mean so much (it can be a synonym for 'above'), but Ross's claim that it "cannot mean" 'higher above' seems rash. If he is right, "these" must refer, as he says, to F and its co-ordinate genera. In ᵃ29 "this way" is 'x and y are one in genus', the new way 'x and y are one G'.

1016ᵃ32. Cf. *I* 1. 1052ᵃ29–34. As indicated by the parenthesis in ᵇ3–6, formula *A* is indivisible relative to formula *B* when *A* and *B* are the same formula—that is, when they say the same thing. Aristotle's first example appears to be of a single individual, e.g. an animal, which can grow larger or smaller and yet remain the same individual animal. The second example may be of two plane figures, e.g. squares, which have one form or shape and therefore, because the essence of a figure is its shape, one formula. The third sentence in effect distinguishes these two kinds of case: *x* and *y* are "most of all one" when indistinguishable in essence *and* time and place, but they will be less one if both essentially humans but not the same human; cf. the distinction between 'one in form' and 'one in number' at 1016ᵇ31, and *I* 1. 1052ᵃ29, "other things are one whose formula is one, i.e. their conception is one, i.e. indivisible; and it is indivisible when the thing is indivisible in form or number. The particular, then, is indivisible in number . . ." For the distinction between having an essential formula or essence and being a substance or essence see *Z* 4 and *Topics* I 9. The final parenthesis, in equating being one with being without division, glosses over the number/form distinction: if *x* and *y* are "without division *qua* man" merely in the sense that both have the formula of man, it does not follow that they are one man (hence Ross's surely unjustified gloss 'one kind of man'); whereas if they are in that sense without division *qua* animal or *qua* magnitude they will be one animal or one magnitude (cf. Aristotle's usage of 'one and the same figure' at 1016ᵃ31, and 1016ᵇ31–5, *Δ* 15. 1021ᵃ11).

1016ᵇ6. This is a puzzling paragraph. Has the distinction between being somehow related to what is one and having one substance already been drawn? If so, was this at 1016ᵇ3 (being one man = having one substance; being one magnitude = being related to one quantity)? Or are the secondary unities of ᵇ6–8 the same as the coincidental unities of the first paragraph? Artistic Coriscus could be said to be one from "being related to some other thing that is one", but nothing in the first paragraph answers to "either doing or possessing or being affected by . . . some other thing that is one". These phrases suggest examples like gas and electricity, which are heating agents (do one thing), or money and labour, which can be expended or conserved (are affected in one way); but are such pairs called one for these reasons? In ᵇ8–9 'substance' is used in the three senses of *H* 1. 1042ᵃ3–15: the primary unities are things whose *bodies* are one in continuity, whose *matter* is one in form or whose *what-it-is-to-be* is one in formula. These three correspond with the second, third, and fifth paragraphs, and doubtless Aristotle comprehends the fourth paragraph with the third, as treating of "much the same sense".

1016ᵇ11. Cf. *I* 1. 1052ᵃ22–8. Among continuous things not only the straight and the rigid (1016ᵃ9–17) but, Aristotle now adds, wholes are

more readily asserted to be one. A whole must "possess one form" in the sense 'have one shape', not as in 1016ᵃ19. But Aristotle does not explain on what grounds a misassembled shoe could be denied to possess one form; would it make a difference if the object so produced had a name, or a use? A straight line need be no less complete than a circle in any of the senses of 'complete' given in Δ 16; but see *Physics* VIII 9.

1016ᵇ17. Cf. *I* 1. 1052ᵇ15–1053ᵇ8. The six preceding paragraphs have distinguished a number of senses of 'one', summed up (all but the last) at 1016ᵇ6–11 under the two headings 'being related to some other thing that is one' and 'having one substance'. These senses are derivative from that, or those, employed in their definitions. It is presumably the non-derivative senses to which Aristotle now turns his attention. The first sentence is corrupt and the translation follows Ross's reconstruction. Jaeger in the OCT has 'being one is the origin of being a certain number'; but Ross's version requires a more natural suppressed premiss in ᵇ17, viz. 'to be one is to be the first measure of a number'; cf. *I* 6. 1057ᵃ3–4. One is the "measure" of number because the possibility of counting depends on the possibility of counting in ones, cf. *Physics* III 7. 207ᵇ7, "a number is several *ones*" (Aristotle did not reckon one itself as a number: *Physics* IV 12. 220ᵃ27, *M* 9. 1085ᵇ10). Aristotle's further stipulation that to be one is to be the *first* measure of a genus indicates that, in the strict sense now under consideration, what is one in a genus is the minimum part of a member which is itself a member of the genus. This explains "indivisible in form" (cf. *I* 1. 1052ᵇ16–27): Aristotle cannot mean that e.g. one vowel must be indivisible into parts, for the sounding of a vowel has to occupy a stretch of time; nor that one vowel must be indivisible into other vowels, for most words are indivisible into words, yet a word is not "that which is one" in the genus articulate sound; his point is that one vowel is indivisible into other articulate sounds. *Physics* V 4. 228ᵃ21 says that "every change is divisible", sc. in quantity; a unit change must therefore be indivisible in form. Aristotle gives two possible criteria for this, at 1016ᵃ6 and *Physics* V 4. 227ᵇ20–228ᵃ23.

"In all dimensions" etc.: literally 'in all ways' etc., see Heath, *Mathematics in Aristotle*, 206–7.

1016ᵇ31. This paragraph seems intrusive. The senses it lists are, unlike many which have preceded, all senses in which 'one' means 'the same' (type 2), not 'single' (type 1). Thus the fourth verb and the last verb in the foregoing sentence are one verb in number, even though that verb is not without parts, nor even a unit of articulate speech. "One in genus" repeats the sense of 1016ᵃ24, 'having the same genus', except that genera are now limited to the small number of categories (see Δ 28. 1024ᵇ 12). "One in form" seems to echo 1016ᵃ32, 'having the same formula', but

this paragraph adds that things numerically different may be the same in form, which was previously glossed over. The senses given to 'one in form' at 1016ᵃ17 and 1016ᵇ11 are now inappropriate; the latter was contrasted with 'one in formula' at 1016ᵇ9, as it will be again at 1017ᵃ 5–6. "One in analogy" is a sense previously ignored. An analogy is a statement that $a : b :: c : d$; see for instance N 6. 1093ᵇ18–20, "as straight is in length so is the level in breadth"—the straight and the level are one and the same in analogy. If x and y are in one genus G, they are also one in analogy in that $x : G :: y : G$.

1017ᵃ3. The brief discussion of 'many' returns to the classification of 1016ᵇ6–11. For first and last matter see 1016ᵃ17–24. 'Many' is discussed more fully in I 3 and 6.

CHAPTER 7

pp. 215–16 As in $\varGamma$ 2 and E 2, Aristotle introduces his discussion of the various senses of the verb 'to be' by means of the participle 'that which is'; but 1017ᵃ22 ("are said to be") and 1017ᵃ31 (" 'to be' and 'is' ") show that what he says is meant to cover all parts of the verb. His four main senses are examined at length in later books of the *Metaphysics*: coincidental being in E 2 and 3, being in its own right in Z and H, being as truth in E 4 and $\varTheta$ 10, and being as actuality and potentiality in $\varTheta$ 1–9. A general question about the first two senses is whether they are to be understood as applying to the copulative 'be', the existential 'be', or one to each. In answering this question it is more convenient to start from the second sense, reversing the order of Aristotle's first two paragraphs.

1017ᵃ22. Aristotle tells us that the things that are in their own right are those "which signify the figures of predication", i.e. predicables such as man, the pale, walking (not the *words* 'man', 'pale', 'walking'). He classified all predicables, together with primary substances which are "neither said of a subject nor in a subject" (*Categories* 5. 2ᵃ12–13), under a small number of types or "figures", eight in this chapter, ten in the longest list at *Categories* 4. 1ᵇ25–2ᵃ4. We call them categories, '*kategoria*' being Aristotle's word for 'predication'. ᵃ22 might alternatively be construed 'all things signified [i.e. indicated] by the figures of predication', but the translation adopted is more likely (cf. ᵃ25 "signify . . . a qualification"). Aristotle's argument is that since e.g. the pale (and, doubtless, 'pale') signifies a qualification, 'to be' may also signify a qualification. The conclusion of this argument can be taken in any of three ways, of which the first two are:

(1) 'something is pale (has pallor)' signifies 'something is qualified in a certain way',

(2) 'the pale (pallor) exists' signifies 'the pale qualifies something'.

In general, Aristotle may mean to distinguish and classify (1) different ways of understanding propositions of the form '*x* is *F*' or (2) different senses of the word 'exist'.

Two things support (1). First, in ᵃ27–30 Aristotle explains that sentences employing verbs other than 'to be' can be rephrased in such a way as to incorporate that verb as a copula (cf. *De Interpretatione* 12. 21ᵇ9–10; his distinction is literally between e.g. 'walks' and 'is walking', but the Greek corresponding to the latter is both less idiomatic and less specialized than our continuous tense). Secondly, *Prior Analytics* I 37. 49ᵃ6–7 implies category distinctions in the copulative sense of 'be' by asserting them of its technical counterpart 'hold good of'. On the other hand, if the sense in which a thing *is* in its own right is to be exemplified by such copulative uses of 'is' as in 'Coriscus is pale', what is to exemplify the coincidental sense discussed in 1017ᵃ7–22? For at 1017ᵃ9 Aristotle tells us that that which is is so called coincidentally when, for instance, we assert a man to be artistic. Ross meets this difficulty by proposing a third interpretation, according to which Aristotle's being-in-its-own-right is restricted to those copulative uses in which the predicate is the form or genus of the subject and so necessarily true of it, for example

(3) 'The pale (pallor) is a colour' signifies 'the pale is a certain qualification'.

(Another example might be 'this colour is pale', which "says what it is *and* signifies a qualification", *Topics* I 9. 103ᵇ31–3.) According to Ross, the senses of 'be' implied by the *Prior Analytics* passage are to be taken as coincidental, mentioned though not subdivided in 1017ᵃ7–22. But Ross does not explain why, when Aristotle divides by categories the 'necessary' senses of the copulative 'be', he should omit to do the same for the 'coincidental' senses. Further, Ross is forced to explain the intrusion of non-necessary examples in ᵃ27–30 (e.g. "a man is one that walks") as due to Aristotle's wish to illustrate, by the readiest means at hand, the general point that ' "is" takes its colour from the terms it connects', sc. even if those terms are participial and so render the verb 'is' elidable. But Ross would have to admit that on his interpretation ᵃ27–30 would fit better in the previous paragraph.

A further consideration favours (2) over both (1) and (3). The copulative 'be' reappears, and according to ᵃ27–30 must implicitly reappear, in the analysis of 'something is pale' as 'something is qualified in a certain way' and of 'the pale is a colour' as 'the pale is a certain qualification'. It follows that there is no reason for treating these analyses as exhibiting different *senses* of the copulative 'be'. In the case of (1), for instance, the thesis that 'something is pale' signifies 'something is qualified in a certain way', whereas 'something is a thing that walks' signifies 'something is acting in a certain way', may help to show that 'pale' and

'thing that walks' have generically different meanings, but does nothing to show that 'is pale' and 'is a thing that walks' employ different senses of 'is'; and similarly in the case of (3). But taken as an analysis of existence, Aristotle's thesis would have the merit of providing an account of the meaning of 'exist' which is not expressed in terms of (non-copulative) existence. If 'the pale exists' signifies 'the pale is a qualification of something', whereas 'walking exists' signifies 'walking is an action of something', it is more reasonable to conclude that 'exists' has different senses in the two cases. The passage in the *Prior Analytics* may then be explained as offering a parallel analysis of 'holds good of' (as meaning e.g. 'is a quality of', 'is an action of') which is *not* meant to carry over to the copulative 'is'. ᵃ27–30 remain puzzling, but are perhaps to meet the objection that we do not commonly say such things as 'walking exists'. According to Aristotle 'walking exists' is implied by 'Coriscus walks' (he holds that 'x's walking exists' is equivalent to 'x is walking', not, as we might say, to 'it makes sense to say that x is walking', see Δ 3. 1070ᵃ22–3 "for [his] health exists just when the man is healthy . . ."); and this implication might be thought to be made more obvious to a Greek by the consideration that 'Coriscus walks' already contains a hidden 'is', albeit a copulative and not existential 'is'.

If, in the second paragraph at least, Aristotle seeks to distinguish different senses of 'exist', we may now ask whether he succeeds. For although the availability of different paraphrases for 'pale exists' and 'walking exists' might intelligibly be urged as a reason for treating 'exists' as homonymous, it does not follow that the reason is a good one. Would it not be better to say that pallor and walking exist in the same sense but under different sorts of conditions, or by the satisfaction of different criteria? Is it not odd, for instance, to treat a dispute between a materialist and a 'realist' over the requirements for the existence of numbers as a dispute about the sense of a word? Aristotle's parallel treatment of 'good', which "is said in the same number of ways as that which is" (*Nicomachean Ethics* I 6. 1096ᵃ23–4, *Eudemian Ethics* I 8. 1217ᵇ 26–7) is open to the same objection. On the other hand, the objection employs a distinction—between identity of sense and identity of criteria —which is both dubious in itself and unknown to Aristotle; so that it would be reasonable to deflect it by interpreting his thesis in the way which the objection itself concedes to be innocent, construing Aristotle's "many ways" here as 'many criteria', not 'senses'. But another problem remains: criteria of existence must be much more numerous than the eight or ten categories. Aristotle himself seems to admit this in other places: for instance, his division of ways of being at Γ 2. 1003ᵇ6–10 makes no reference to categories other than substance, quality, and action, but adds many other non-categorial headings; *De Anima* II 4. 415ᵇ13 says that "for living things, to be is to be alive"; and the more

systematic treatment in *Metaphysics H* 2 argues, again without reference to categories, that since one thing may be distinguished from another either e.g. by the way its materials are put together (a bundle of planks from a wooden box) or by position (threshold from lintel) or by time (breakfast from dinner) "it plainly follows that 'is' is also said in the same number of ways; for a threshold *is* because it is positioned in such and such a way . . ." (1042ᵇ25–6). The last text does, however, suggest how Aristotle might have thought that the ways of being could be *reduced* to the eight or ten 'figures of predication'; for being-in-a-position is among the ten figures listed in *Categories* 4 (2ᵃ2). It is true that threshold and lintel demand different positions: for the threshold, to exist is to be positioned "in such and such a way". But an unqualified reference to position, though it cannot fully specify the conditions of a threshold's existence, will indicate one necessary condition which the threshold has in common with the lintel. The categories are thus apparently intended not to enumerate but to classify the criteria of existence (cf. Δ 2. 1013ᵇ29–30). Aristotle thought that the number of these ultimate kinds cannot be much reduced below, and should not be much increased above, the eight or ten he usually lists; an opinion which he nowhere attempts to justify, but which cannot be discussed here. Nor does Aristotle explain how he would deal with things whose existence depends on criteria falling under more than one category, as dinner's does on size as well as time.

1017ᵃ7. Aristotle's examples of coincidental being are given in the assertions:

(*a*)   'someone just is artistic';

(*b*)   'a man is artistic';

(*c*)   'someone artistic is a man'.

The subject of each of these assertions begins with a definite article in the masculine: literally 'the just . . .', 'the man . . .', 'the artistic'. Two main questions call for comment: (A) is the coincidental sense of 'be' a sense of the copulative or existential 'be'? and (B) in what sense is it coincidental?

(A) (1) There are two arguments in favour of the view that Aristotle's subject is coincidental copulative being. (i) His examples are examples of that (e.g. one who is just is not necessarily or always artistic); (ii) the parenthesis in ᵃ12–13 explains the copulative 'is' in terms of the relation coincidence. On the other hand (iii) the second paragraph does not seem to restrict itself to *necessary* copulative being, as argued above, and (iv) this account does not provide any way of classifying false predications. (2) Rather than holding that the copulative sense of 'be' is sometimes to be understood in terms of coincidence, Aristotle may mean that the

copulative sense of 'be' is always a coincidental, i.e. derivative, sense; and that the sense or senses described in the second paragraph, in which 'be' means, as we should say, 'exists', are primary. This interpretation would explain why in ᵃ20–2 his analysis of the coincidental things-that-are revealed by assertions such as (a)–(c) includes a reference in each case to some *other* thing-that-is: the latter would be an existent thing e.g. a man, whose existence accounted for the non-existential being of e.g. the man's being artistic (cf. also *De Interpretatione* 11. 21ᵃ25–8). (3) However, in the parallel list of senses of 'be' at the beginning of *E* 2 Aristotle announces that all the senses there distinguished, including the coincidental, belong to "that which is when *baldly* so called", a phrase normally used to pick out the existential 'be' (see notes ad loc.); and this favours the view that Aristotle's distinction is between a co-incidental and, in his second paragraph, certain non-coincidental senses of the *existential* 'be'.

(B) What does 'coincidental' mean in this chapter? There are three possibilities, (1) 'unusual', (2) 'non-essential', (3) 'derivative'. (1) *E* 2, starting from a repetition of *Δ* 7's fourfold division of senses of 'be', continues with an examination of coincidental being, in the course of which the coincidental is defined as being "what is neither always nor for the most part" (1026ᵇ31–2). This implies that 'coincidental thing-that-is' means '(comparatively) unusual thing-that-is', and we may assume that to say that an artistic man is an unusual thing-that-is is the same as to say that it is unusual for artistic men to exist. But there are difficulties with this account. (i) in *Δ* 7 coincidental things-that-are are contrasted with things-that-are in their own right. This seems different from the contrast between the usual and the unusual. (ii) If, as argued above, things-that-are in their own right include such items as Callias and pallor, it is hard to see how these could be said to exist usually. 'An artistic man is unusual' denies that two components usually go together; 'Callias is unusual' cannot be taken in the same sense—nor therefore 'Callias is usual'. (2) If, however, 'coincidental' means 'non-essential', there is a good contrast with 'in its own right': for such items as Callias and pallor are essentially things-that-are, which means to say—trivially —that their being things-that-are is a condition of their existence. On the other hand, it seems by the same token contradictory to assert of anything that it is *non*-essentially a thing-that-is. We can indeed say that a man is non-essentially *artistic*, for his existence does not depend on his artistry; but we cannot say that an artistic man is non-essentially existent. There are three reasons why Aristotle may have overlooked this difference. (i) It does not occur when 'coincidental' has the sense 'unusual': 'it is unusual for a man to be artistic' is equivalent to 'it is unusual for an artistic man to exist'. And nowhere does Aristotle clearly reveal that he saw the difference between these two senses of 'coincidental'. (ii) Word-

order being variable in Greek, 'a man is artistic' could be written, as Aristotle writes all his examples in this paragraph, with 'is' at the beginning or end. Idiomatic Greek would indeed still distinguish 'a man artistic is' as copulative from 'an artistic man is' as non-copulative, but if the significance of that idiom escaped Aristotle he had no other way of distinguishing 'a man is non-essentially artistic' from 'an artistic man non-essentially is, i.e. exists'. (iii) The notes on Δ 6. 1015ᵇ16 suggest that Aristotle assumed that certain complex referring expressions such as 'an artistic man' refer to complex non-linguistic entities which we may call states of affairs. He may thus have been tempted to argue that the existence of a man who is artistic does not depend on that of the complex state of affairs designated 'artistic man': hence that the artistic man is a non-essential existent. But whatever we think of coincidental unities, this account of coincidental existents must be incoherent. There is not only the general objection that it is wrong to regard the state of affairs designated 'artistic man' as a combination of two items, the man and the artistic (either 'the artistic' means 'someone artistic', in which case there is only one item, or it means 'artistry', in which case we face the impossible question 'is the man-element in the complex artistic or not?', cf. Plato, *Parmenides* 142 de). In addition, the theory gives sense to the claim that an artistic man's existence does not depend on an artistic man's existence only at the cost of making two distinct items—man and state of affairs— of the things referred to by the two occurrences of 'artistic man': but of course a thing is non-essentially *F* only when its existence does not imply *its*—the same thing's—being *F*.

(3) The above explanation has the merit of reading Aristotle's distinction between 'coincidentally' and 'in its own right' in exactly the same sense as in Δ 6 and Δ 9. But it fails to account for a feature of his treatment of coincidental being which has no parallel in those other chapters: the presence in the summary at ᵃ19–22 of references to some *other* thing-that-is. Aristotle holds that in e.g. the sentence 'someone just is artistic' we signify that the just and the artistic coincide in the same thing-that-is. This suggests that he takes such a sentence to use 'is' in a *derivative sense*, which has to be explained by reference to the way in which something else 'is': specifically that the being (existence) of the complex item designated 'the just artistic' has to be explained by reference to the being (existence) of the man in whom the elements of that complex severally coincide (for the use of 'coincidentally' to mean 'in a derivative, or secondary, sense' see e.g. *Categories* 6. 5ᵃ38–ᵇ4).

Interpretation (2) asserted that the existence of the simple item designated by 'the artistic man' does not depend on the existence of the complex state of affairs designated by the same expression. Conversely, (3) asserts that the existence of the latter does depend on that of the former, and has to be explained by reference to it. These two doctrines are not

antagonistic but complementary. Indeed it may well have been Aristotle's view that the existence of *B* is derivative from that of *A only* if *A* can continue to exist when *B* does not. If so, (3) implies the substance of (2) while also giving a better explanation of the meaning of 'coincidental'.

Two minor points remain. "For 'that this is this' signifies 'that in this this coincides' ": sc. in the examples given. Aristotle temporarily overlooks the case allowed in ᵃ15 in which two things coincide not one in the other, but both in a third thing. 'Someone artistic builds' is really of this indirect type. "The not-pale is said to be" introduces an assertion which, unlike (*a*)–(*c*), has not even the appearance of being copulative. Aristotle's point may be that just as, in (*c*), 'the artistic' designates something essentially a man but 'man' designates something non-essentially artistic, so in 'the not-pale is' 'the not-pale' designates something essentially existent but 'is' designates something non-essentially not-pale. If so, the example has nothing to do with coincidental being.

1017ᵃ22. See pp. 140–3.

1017ᵃ31. It was a common Greek idiom to use 'is' and 'is not' in the sense 'is the case' and 'is not the case' (e.g. *Γ* 5. 1009ᵃ7). Thus it is the possibility of falsehood which is at issue in the Platonic puzzles, e.g. in the *Euthydemus* and *Sophist*, about 'saying that which is not'. But the phrase 'it is (not) *that* . . .' regularly meant 'it is (not) *possible* that . . .'. This may explain why the examples which Aristotle gives contain no subordinate clause; where we should expect 'it is (the case) *that* Socrates is artistic' etc. we have merely 'Socrates is artistic' etc. with the 'is' (or 'is not') emphatically placed at the beginning. Whatever the explanation of this oddity, its effect is to destroy the value of the examples as illustrations of a separate sense of 'is'. For the fact that '*x* is *F*' means the same as 'it is true that *x* is *F*', and '*x* is not *F*' as 'it is false that *x* is *F*', can have no tendency to show that 'is' can mean the same as 'is true', or 'is not' as 'is false'.

p. 217   **1017ᵃ35.** This paragraph introduces, not a further sense of 'be', but a further way of classifying the cases of being already given (cf. *Θ* 10. 1051ᵃ35–ᵇ1). 'Sees' (in English 'can see') is ambiguous between 'has sight' and 'is using sight'; cf. *Θ* 6. 1048ᵇ12–14, *Topics* I 15. 106ᵇ15–18, and Philonous' remark in the first of Berkeley's *Three Dialogues* "sensible things are those only which are immediately perceivéd by sense". Aristotle justifiably uses this fact to infer that 'is one-that-sees' is also ambiguous; but he does not explain how, in the latter case, the ambiguity is transferred from 'sees' to 'is'. The two succeeding examples do not even employ the verb 'be' ('be-at-rest' is a single word in the Greek), but Aristotle would presumably argue, as in 1017ᵃ27–30, that '*x* knows' and '*y* is-at-rest' can always be paraphrased into '*x* is one-that-knows' and '*y* is one-that-is-at-rest'. His treatment of "the half of a line" as a substance

may be, as Ross suggests, a concession to mathematically minded Platonists. Or could 'substance' here mean 'what is in its own right'? If so, the examples of sight, knowledge, and rest will correspond to the first paragraph of the chapter, so that 'Callias is one-that-sees' asserts, ambiguously, the *coincidental* existence of the seeing Callias. Aristotle's point in the penultimate sentence is that a future idol must already exist in the unworked stone, because the very same stuff which will become the idol exists already (ought he not to add that the past idol must still exist in its dispersed chippings?).

CHAPTER 8

This chapter is too sketchy to give a satisfactory account of the difficult and important notion of a substance. More is to be learnt from *Categories* 2 and 5, and from Aristotle's discussion of the question 'which kinds of things are substances?' which takes up most of *Z* and *H*. A thorough understanding would call for examination of the related concepts *what-it-is-to-be, coincidence, form, subject.*

1017ᵇ10. The simple bodies are the elements earth, air, fire, and water; see Δ 3 and A 3. 984ᵃ5–16. "Deities": stars (*E* 1. 1026ᵃ17–18). "Things not said of a subject": see note on 1017ᵇ23. With this paragraph cf. *Z* 2. 1028ᵇ8–15.

1017ᵇ14. It is usually matter which is described as a constituent cause (Δ 2. 1013ᵃ24–5), but the example shows that Aristotle's reference here is to forms, which are sometimes said to be "in" things (e.g. *Z* 11. 1037ᵃ 29) although not "in a subject" according to the idiom of *Categories* 2. 1ᵃ20–ᵇ9 (cf. 5. 3ᵃ14). A thing's form is cause of its being because its existence is dependent on its having that form. According to *Categories* 2. 1ᵃ20–2 forms *are* said of a subject; 5. 2ᵃ14–19 groups them with genera as "secondary substances", but *Z* 7. 1032ᵇ1–2 makes them primary. These inconsistencies may reflect ambiguity in the word '*eidos*', which in the *Categories* is closer to 'species' than to 'form'.

1017ᵇ17. Does Aristotle think that planes, lines, and numbers meet the conditions laid down in this paragraph for being substances? In *B* (5. 1001ᵇ27) one of the problems was "whether bodies and planes and points are kinds of substance or not?" *M* 2. 1077ᵃ31 answers "a body is a kind of substance, for in a way it already possesses completion; but how can lines be substances?" The latter chapter is a response to Platonists of a Pythagorean bent; this suggests that "as some assert" and "is thought by some" refer to such Platonists and convey Aristotle's dissent from them. He has reasons for dissenting. If bodies were made out of numbers, as the Pythagoreans say, they would have to be without

weight (*N* 3. 1090ᵃ30–5); and *Physics* VI 1. 231ᵃ21–ᵇ18 argues that "it is impossible for something continuous to be [made] out of indivisibles, as for instance a line out of points". But these reasons seem insufficient to deny planes etc. the status of substances under the criterion of this paragraph. For (i) though not composed of planes, bodies cannot exist unless planes do. (ii) "Define" might mean 'bound' or 'provide a principle of individuation'. If the former, it is indeed true that not all "such things", viz. animals and stars and so on, are bounded by *plane* surfaces, but "plane" may well be a slip for 'surface'; cf. *Physics* III 5. 204ᵇ5–7. If the latter, it seems neither false nor unhelpful to say that e.g. star A and star B are two "thises" (particulars) just if their surfaces are discontinuous, and their surfaces are discontinuous just if no line forms part of both. Aristotle is on firmer ground if he denies that *numbers* define bodies, in either sense. In view of these considerations, it is probably Aristotle's belief that the conditions laid down in the paragraph are not sufficient, although some have thought them sufficient, to make a thing a substance; cf. *Z* 2. 1028ᵇ18–21. The summary beginning 1017ᵇ23 does not mention this sense.

1017ᵇ21. This is the sense in which it is natural to translate *'ousia'* as 'essence' rather than 'substance'. A thing's what-it-is-to-be is the same as its form (*Z* 7. 1032ᵇ2 and often), or its "substance without matter" (*Z* 7. 1032ᵇ14).

1017ᵇ23. The summary omits the third sense and identifies the second with the fourth, leaving 'substance' to mean (A) 'body', i.e. "the concrete whole made out of form and matter" (*Z* 11. 1037ᵃ29–30) and (B) 'form' or 'essence'.

(A) "Ultimate subject" picks up 1017ᵇ13–14 "they are not said of a subject but the rest are said of them". It is not clear that these expressions can bear the weight which Aristotle puts on them. An ultimate subject is 'said of' nothing else; and '*Υ* is said of nothing else' appears to mean ' "*X* is *Υ*" is true only if *X* and *Υ* are the same thing'. But it seems we may say both that 'this matter is Socrates' can be true and that Socrates is not the same thing as his matter; and if so, (i) Socrates will not be an ultimate subject, (ii) his matter will be. Aristotle wrestles with these problems in *Z* 3, insisting at 1029ᵃ27 that it is impossible that matter should be substance. Furthermore, there might be particular qualities, quantities, etc., which are said of no subject. Aristotle acknowledges this at *Categories* 2. 1ᵃ23–9, instancing "the individual knowledge-of-grammar" and "the individual pale". As a result he there stipulates that particular substances are *neither* said of a subject *nor* in a subject, and defines 'is in a subject' to imply "cannot exist separately from what it is in". But the separability requirement is omitted here.

(B) In the case of form-substances the present passage does, like *Categories* 2, require separability. But how can a form be "separable and a this"? It is separable in thought (*Physics* II 2. 193^b33–34), but seemingly inseparable in the *Categories* sense, since it cannot exist—or rather, perhaps, be identified—"apart from sensible substances" (*M* 1. 1076^a11). Usually the concrete particular, as opposed to what is said of a subject, is a "this" (*Z* 8. 1033^b21–2); but the description is sometimes applied to forms (e.g. *H* 1. 1042^a29), presumably on the grounds that form is what *makes* matter into countable units ("the cause by which matter is a something", *Z* 17. 1041^b7–8).

At *H* 1. 1042^a26–31, *De Anima* II 1. 412^a 6–9, Aristotle divides substance into three kinds, form, matter, and "what is [made] out of these".

CHAPTER 9

There are other discussions of 'the same' at *Topics* I 7 and at *I* 3. 1054^a   pp. 208–14
32–^b3. Sameness in number, form, and genus (cf. *Δ* 6. 1016^b31) are distinguished at *Topics* VII 1. 152^b30–3, but not in this chapter.

1017^b27. Whereas two things can be one, viz. make up a unity, it is impossible for two things to be the same thing, as Aristotle acknowledges at the end of the next paragraph. There is therefore no excuse for his saying that e.g. man and artistic are the same thing because *one* of them coincides in the *other*. Instead, his explanation of coincidental sameness requires him to distinguish two senses of 'the artistic', 'the pale', etc. (as in *Δ* 6).

"The artistic [is] a man because it coincides in the man" contributes nothing to the analysis of sameness and is, doubtless for that reason, omitted by one good MS.; disagreement of gender forbids construing "the artistic man" in it as a single phrase, but that must be the phrase to which "the latter" in the next sentence purports to refer.

On the meaning of 'coincidental' see notes on *Δ* 6. 1015^b16.

Aristotle's objection to 'every man is the same as the artistic' shows that he takes that sentence not in the strong sense 'some (one and the same) artistic thing is the same as every man', which is false because there is more than one man, but in the weaker sense 'every man is the same as some artistic thing or other', which is false because not every man is artistic. He argues that if every man were artistic, 'artistic' would hold good of men in their own right; hence no man would be coincidentally artistic; hence the identity of a man and a particular artistic thing would not be coincidental. This argument follows *Posterior Analytics* I 4. 73^b26–28 in ignoring the distinction between 'universal' and 'in its own right' implied at *B* 4. 1000^a1, *Prior Analytics* I 1. 24^a18, and ib. I 8.

What does Aristotle mean when he says "in the case of particulars we do so speak baldly"? (1) The contrast may be between the universal *proposition* 'every man and the artistic are the same', which is false, and the particular proposition 'Socrates and the artistic (Socrates) are the same' which, like the particular proposition in ᵇ29 'man and artistic are the same', could be true. But (i) this interpretation does not explain the word "baldly", and (ii) the contrast it indicates does not turn on the alleged fact that 'we do not say "every Socrates" as we do "every man" '. (2) The word "baldly" suggests that Aristotle's contrast is between universal and particular *words*. We may say that some man and the artistic are the same; but if we speak baldly, i.e. without such an additional 'some', we shall imply the falsehood that every man and the artistic are the same. The implication is not carried when, instead of 'man', we use the particular word 'Socrates'. The objections to this interpretation are (i) that in ᵇ29 ("man and artistic") Aristotle has violated his own ban on 'speaking baldly'; (ii) he maintains elsewhere that indefinite, i.e. unquantified, propositions do not imply their universal closure (*Prior Analytics* I 7. 29ᵃ27-9, cf. I 1. 24ᵃ16-22, *De Interpretatione* 7. 17ᵇ8).

There is further ambiguity in the reason which Aristotle gives for its being true to say baldly that Socrates and the artistic Socrates are the same. (1) He might mean that " 'Socrates' does not apply to a number of things" *at once*; that is, with proper names there is no idiom corresponding to that by which we may use the singular of a general name to speak of more than one thing, as in 'the Frenchman is excitable'. This is a good point, but its truth is independent of the question whether we do or do not "say 'every Socrates' "; rather it requires—and this may be the sense of the Greek—that we never *mean* 'every Socrates' by 'Socrates'. (2) Aristotle may be making the bolder, and false, claim that 'Socrates' is the name of just one thing and the expression 'every Socrates' has no use; cf. *De Interpretatione* 7. 17ᵃ39-ᵇ1.

1018ᵃ4. "Sameness is a kind of oneness" because any statement using 'same' can be rephrased using 'one'. Aristotle appears to maintain that the converse is also true when he says that things are called the same in their own right "in as many ways" as they are called one (the word translated 'in as many ways' is a modern emendation, but the corrupt readings of our MSS. convey the same sense). It is hard to see the justification for the latter claim. (i) Nothing here or elsewhere corresponds to the sense of 'one' at Δ 6. 1016ᵇ11-17. (ii) The sameness of things whose matter is one in form answers to Δ 6. 1016ᵃ17-24, but the correspondence is not exact, because at least part of the paragraph in Δ 6 treated 'one' as a one-place predicate (i.e. gave a type 1 criterion of unity; see note on Δ 6. 1015ᵇ16, paragraph (B)). (iii) The same objection faces Ross's suggestion that the sameness of things whose matter is one

in number corresponds with oneness in continuity, Δ 6. 1015ᵇ36–1016ᵃ17. "Whose substance is one" answers not to the same phrase at Δ 6. 1016ᵇ 8–9, but to "indivisible in formula", 1016ᵃ32–ᵇ6.

At the end of the paragraph Aristotle distinguishes two main types of sameness. One "says that a thing is the same as itself", i.e. uses 'same' in a way which implies 'same thing': example 'same man'. The other may be truly predicated of two different things: example 'same colour'. Even the former type "treats one thing as more than one" because it requires two subject-expressions; i.e. 'is the same as', unlike 'is one', is always a two-place predicate.

1018ᵃ9. As Ross notes, the three senses of 'other' do not answer exactly to the senses of 'the same' in the previous paragraph. Ross is surely wrong in thinking that otherness in form "reduces" to otherness in form of matter: for example, a bronze sphere and a bronze cube are other in form but the same in form of matter.

1018ᵃ12. The paragraph lists four senses of 'differing'. Aristotle's account of the first is obscure. If we construe the phrase "not only in number . . . analogy" as explanatory of "same something", we may either (1) follow Alexander and Ross in understanding "not only" in the sense 'only not', which is difficult, or (2) rely on the fact that it is possible that over an interval of time *x* and *y* should be the same even in number and yet other e.g. in quality. (3) Alternatively, the phrase might be construed as explanatory of "other". If so, "other [in number] while being the same something" would not imply the theory that identity is relative, since according to Aristotle's usage it is permissible to say of two men that they are different men but (because both men) the same animal (see Δ 6. 1016ᵃ28–32). He does not say whether it is possible for two things to be other and not the same *anything*, but probably he would have thought that this is true of items in different categories. "Otherness in their substance": i.e. in some quality in which they differ essentially—a differentia in Aristotle's technical sense.

1018ᵃ15. A different classification of senses of 'similar' is given at *I* 3. 1054ᵇ3–13; see Ross.

CHAPTER 10

1018ᵃ20. The first four of Aristotle's five types of opposites recur in *Categories* 10, which is a fuller treatment of the same subject, and elsewhere. "The points from which and to which comings to be and destructions ultimately lead" might be opposite ends of a process, e.g. the state of being (or stuff which is) in a quarry and the state of having been

(or the same stuff which later has been) formed into a house. But if so, why does Aristotle omit processes of non-substantial change? ª22–5 do not introduce a sixth type of opposite, but argue that 'x is capable of being F and of being G but not of being both simultaneously' is not, as we might suppose, sufficient to make F and G opposites. For grey and white are so related, but grey, being made out of the contraries white and black (or pale and dark), is what *Categories* 10. 12ª17 calls an "intermediate".

1018ª25. Contraries are attributes such as paleness and darkness, not substances such as white men and negroes (*Categories* 5. 3ᵇ24–7); but the latter are derivatively "so called from possessing . . . or from being recipient of" contrary attributes (ª31–2). *I* 4, a fuller treatment, defines contrariety as "greatest difference" (1055ª4–5) or "complete difference" (1055ª16). The implication that "one thing cannot have more than one contrary" (1055ª19–20) is allowed to have exceptions at *Categories* 11. 13ᵇ36–14ª6. Of the senses given here, the first is exemplified by justice and injustice (*Categories* 11. 14ª22–3), the second by up and down (*Categories* 6. 6ª17), the fourth by one and many (objects of the same "capacity", viz. discipline, see *I* 4. 1055ª31–2). What is the difference between the second and third senses (genus and recipient)? There are four possibilities. (1) No difference is intended. Ross refers to *De Somno* 1. 453ᵇ27–9 which says that all contraries are in the same recipient; but on any interpretation the analysis in the present passage is more complex. (2) Contraries present "in the same recipient" have to be compatible. But Aristotle's usage elsewhere suggests that contraries are necessarily incompatible, so that "in the same recipient" cannot imply 'simultaneously' and "differ most" must imply 'incompatible'. (3) Pale and dark are capable of being in the same recipient, but are not the most different "in the same genus" because their possessors do not have to belong to different species or forms (Maier, referring to *I* 9). If this is right, the second sense is narrower. (4) Odd and even are in the same genus, but not both capable of being in the same recipient, e.g. in the number thirteen (Alexander). If this is right, the third sense is narrower. The first sense is omitted in *I* 4. 1055ª22–3 and apparently excluded at *De Generatione et Corruptione* I 7. 324ª2; but see Ross. Ross regards the fifth sense (ª30–1) as a summary of the first four (or rather three), but neither "things whose difference is greatest . . . baldly" nor "things whose difference is greatest . . . in respect of genus" have appeared earlier.

1018ª35. Cf. *Γ* 2. 1003ᵇ34–1004ª2 and 1004ª22–4. "Predication": or category.

1018ª38. Otherness in form is treated at greater length in *I* 8 and 9. "Not subordinate to one another": the subject has to be properties or

kinds of thing, not individuals. Only Aristotle's third sense mentions contrariety, but different *kinds* of things cannot be in the same genus, as required under the first two senses, without either being contraries (e.g. pale and dark) or having contrary properties "in their substance", i.e. essentially (Alexander cites fire and water): see *I* 8. 1058ᵃ8–17. The third sense is nevertheless independent of the other two, since fire and night are other in form in that sense alone, pale and dark in the first two senses alone. Contrariety is no longer required in the last sense, ᵇ6–7.

CHAPTER 11

The first three and the fifth paragraphs answer roughly to priority in (1) time (coming to be), (2) acquaintance, (3) formula, and (4) substance (nature, form), which are distinguished by Aristotle in many places: *Θ* 8 (1, 3, 4), *A* 8. 989ᵃ15–16 (1, 4), *Z* 1. 1028ᵃ31–ᵇ2 (1, 2, 3), *Z* 13. 1038ᵇ 27–8 (1, 3), *M* 2. 1077ᵃ19 (1, 4) and ᵇ2–4 (3, 4), *Physics* VIII 7. 260ᵇ17–19 (1, 4) and 261ᵃ13–14 (1, 4). In the discussion of priority and posteriority in *Categories* 12, the first two senses there distinguished correspond to (1) ("time") and (4) ("not reciprocating as to implication of existence"). For further parallels see Ross.

1018ᵇ9. What is prior or posterior must be a member of a series. According to Aristotle every series must have an "origin", which is either its first member or something outside the series (as a parent is the origin of the developing stages of his child). What the origin of a member of a series is will depend either on the nature of the member or on other things: e.g. the number 15 has 1 as origin by its nature as a number (*Δ* 6. 1016ᵇ17–21), but would have 'love' as its origin in a game of tennis, 10 as its origin in the mind of someone testing how much further than 10 feet he could jump. The "middle" and "end" are perhaps the centre and circumference of a circle. In the temporal order, only the present can fill the role of origin; with the consequence that, to avoid the absurdity of counting the Persian Wars as prior to the Trojan because nearer Aristotle's (or our) present, Aristotle is obliged to maintain—no less absurdly—that what is prior in time is in some cases *further* from its origin. The "things" arranged in order of priority in respect of capacity are (although Aristotle expresses himself in the neuter) more and less powerful men, as Alexander says.

1018ᵇ30. Priority in acquaintance is more adequately discussed at *Z* 3. 1029ᵇ3–12 and *Physics* I 1.

1018ᵇ31. This paragraph makes two claims about priority in formula:

(A) that universals are prior to particulars in formula but posterior in perception, and (B) that e.g. the artistic is prior to the artistic man in formula but not prior in substance or being.

(A) Priority in formula and in perception are presented as forms of priority in acquaintance ("among these", ᵇ31), and so correspond to the distinction of *Physics* I 1. 184ᵃ16–ᵇ14 and *Posterior Analytics* I 2. 71ᵇ33–72ᵃ4 between what is more intelligible in its nature and what is more intelligible to us; the latter passage says that "relative to us, things nearer to perception are prior and more intelligible". When Aristotle claims that the latter form of priority belongs to particulars, the former to universals, it is unclear whether his contrast is between species (forms) and genera, or between individuals and species-cum-genera (cf. *Δ* 2. 1014ᵃ17, 21). What he says about formulae only fits the contrast between species and genera: for the formula of an *individual*, say Callias, is the same as, and so could not be posterior to, that of its species, man; whereas the formula of the *species* man is posterior to, as containing, that of its genus animal (cf. *Θ* 8. 1049ᵇ16–17). What he says about perception, on the other hand, only fits the contrast between individuals and species-cum-genera: for perceptual discrimination of *specific* characters comes within human powers, he thinks, later than perceptual discrimination of generic characters, and so could not be prior (*Physics* I 1. 184ᵇ12–14, children call all men daddies); whereas the objects perceived by means of discrimination of such characters, whether specific or generic characters, are in the primary case *individuals* (*De Anima* II 5. 417ᵇ22, *Posterior Analytics* II 19. 100ᵃ16–ᵇ1, *A* 2. 982ᵃ25).

(B) Aristotle next states what is really the same sense of 'prior in formula' in terms not of prior acquaintance but of one formula's being contained in another; cf. *Z* 1. 1028ᵃ 35–6 "for in the formula of any thing it is necessary that the formula of a substance be a constituent". This linguistic formulation invites the further contrast conveyed in the final sentence: whereas the contained word 'artistic' can exist on its own, the non-verbal item artistry (the artistic) cannot. An alternative translation of the last sentence is "it is not possible for artistic to be without something artistic being", which would make the artistic not only not prior but posterior to the artistic something.

1018ᵇ37. A box might be called straight, meaning 'straight-edged', but it would be the box's edge, a line, that was straight "in its own right"; see *Δ* 18. 1022ᵃ29–35. It is not clear in what sense Aristotle holds that a line is prior to a surface. 'Surface' can be defined as 'line that has moved' (*De Anima* I 4. 409ᵃ4), but equally 'line' can be defined as 'limit of a surface' (cf. *Topics* VI 4. 141ᵇ22). Lines are "more intelligible, speaking baldly" than planes, *Topics* VI 4. 141ᵇ6—we are not told why. *Qua* parts of surfaces lines would be prior according to the next paragraph,

but they are not parts which surfaces are "made out of" (cf. *Physics* VI
1. 231ᵃ24).

1019ᵃ1. The reference to Plato has not been identified; see Ross.

A subject is that of which something else is said or predicated. Accord-
ing to Aristotle, a predicate is something *else* than its subject only if
it belongs to the subject coincidentally (see *Γ* 4. 1007ᵃ20). Therefore
subjects are prior if and only if everything is prior to its coincidental
predicates. Aristotle appears to have regarded such predicates as indi-
vidual to their subjects: e.g. 'Callias is pale', if true, predicates *Callias'*
pallor of Callias (see *Categories* 2. 1ᵃ20 ff., but the passage is taken other-
wise by G. E. L. Owen, *Phronesis* 1965). Hence (i) Callias can exist
without his pallor and (ii) *his* pallor cannot exist without him. This
establishes that subjects are prior, and thus that substances are prior
when they are subjects. But (iii) substances are always subjects (*Categories*
5. 2ᵃ11–14, *Z* 3. 1029ᵃ1–2, but contrast *Z* 3. 1029ᵃ23–4), and (iv) every
other category of thing is a (possible) predicate of (some) substance
(*Z* 3. 1029ᵃ23–4); therefore substances are always prior to everything
else, i.e. are primary (*Z* 1. 1028ᵃ29–36).

The end of the paragraph is difficult, chiefly because of the use which
Aristotle makes in it of the thesis (T) that parts of a thing can survive
dissolution of the thing, and the matter of a substance the dissolution of
that substance. According to the definition of 'prior in nature and sub-
stance', T shows that parts and matter are prior. And so they are, Aris-
totle says, but only "in respect of capacity" or potentiality: for when
the whole exists, the parts exist only potentially (*Physics* VII 5. 250ᵃ24–5),
and when the substance exists, its matter exists only potentially. Thus
parts and matter are prior in the sense that their potential-or-actual
existence is implied by, but does not imply, the existence of their wholes
and substances. So far there is nothing puzzling except that Aristotle
overlooks an equally good argument for saying that parts and matter are
neither prior nor posterior in respect of capacity: viz. that the *merely*
potential existence of a part both implies and is implied by the actual
existence of its whole. But now comes a major difficulty: in what sense
are parts posterior to wholes, and matter to substance, "in complete
reality"? In *Z* 10 we are told that "parts as matter, i.e. into which a
thing is divided as into matter" are posterior (1035ᵇ11–12); and Aristotle
supports this assertion by the claim that when a man's finger is cut off
the man remains a man but the finger does not remain a finger except in
name (1034ᵇ28–30, 1035ᵇ23–5). That claim cannot be used, however, in
the present argument; for it makes the posteriority of parts and matter
depend on something inconsistent with T, not, as the present argu-
ment unexpectedly asserts, on T itself. Nor can 'posterior' here mean
'after' (although "when the others are dissolved" translates a participial

construction which might have temporal force); for if it did, (i) since matter and at least certain parts can exist in complete reality not only after but also before the coming to be of their wholes, they would be both prior and posterior in respect of complete reality; (ii) Aristotle presents posteriority in respect of complete reality as a species of posteriority in substance and nature, but 'posterior' in the latter sense implies 'cannot exist without', which is incompatible with 'can exist after'. For further discussion of senses in which parts are prior or posterior to wholes see Z 10.

There remains the question why Aristotle justifies his contentions in this paragraph by reference to the doctrine that "there are many ways of being" (cf. $Δ$ 7). (1) 'Prior in respect of capacity' and 'prior in respect of complete reality' are doubtless to be analysed in terms of 'being potentially' and 'being actually'. (ii) In connection with subjects and substances the point seems to be that A can be prior to B in "nature and substance" only if A and B 'are' in different ways; i.e. that priority in nature is priority in the *manner* of existence. In the same spirit Z 1 tells us that substance is not only "the primary thing-that-is" (1028ᵃ14) but also "that-which-is in the primary way" (1028ᵃ30). Aristotle seems to infer from 'B's existence is dependent on A's' to 'B's existence cannot be understood without reference to A's'; but he does not defend the inference.

1019ᵃ11. A part *can be* without the whole in respect of destruction, i.e. when the reason for the absence of the whole is that the whole has been destroyed: for instance, a half-apple can be without the other half, when the other half has been eaten. A whole *must be* without its parts in respect of coming to be, because the 'absence' of the parts (in the sense of their not being actual) is implied by the whole's having come to be. This is a more promising contrast than Aristotle made in the previous paragraph, but still not adequate to show that wholes are in any way prior to their parts. Aristotle does not explain how the earlier senses of 'prior' are to be reduced to "these last".

CHAPTER 12

Dunamis (capacity) and *to dunaton* (the capable, possible) are also discussed in *De Interpretatione* 12 and 13, and more fully in *Metaphysics* $Θ$. Most of the present chapter except 1019ᵇ22–33 is concerned with capacities to change (active capacities, abilities) or be changed (passive capacities, liabilities). Aristotle barely considers capacities to *function* in particular ways, e.g. to lead an army (*De Anima* II 5. 417ᵇ32) or to think about a problem or view a scene (cf. $Θ$ 6. 1048ᵇ18–35, where these activities are distinguished from 'changes'); or capacities to be in particular *states*, e.g. to be healthy or noiseless. At $Θ$ 1. 1045ᵇ35–1046ᵃ2

he acknowledges that there are more kinds of capacity than "those so called in respect of change", but treats the latter as "most fundamentally" so called. 1019ᵃ23–6 mentions walking and speaking, which are not properly changes.

Aristotle's choice of the word *'archē'* (translated "what originates") is unhelpful. Doubtless a teacher's capacity to teach and his pupil's to learn can properly be regarded as origins of change in the pupil; but so equally could the teacher himself, his willingness or decision to teach, the pupil's willingness or decision to attend, or the lesson imparted. The chapter furnishes an example of the limited value of paraphrase in the explanation of meaning; Aristotle would have done better to bring out the meanings of 'capacity' merely by giving examples of capacities, as he saw elsewhere (Θ 6. 1048ᵃ36–ᵇ4).

1019ᵃ15. "Or *qua* other": i.e. in the changer *qua* other. The doctor may doctor himself, but not *qua* himself. Is he doctored *qua* other (1) because his patient does not have to be himself or (2) because his patient does not have to be a doctor? "*Qua* being doctored" suggests (2); but in the places where Aristotle discusses the kind of capacity here set aside he seems to have in mind changes which must be worked on the changer himself (see Θ 6. 1048ᵃ27–30, 8. 1049ᵇ8–10).

1019ᵃ19. "Or *qua* other" is again elliptical, in its first occurrence for 'or in the changer *qua* other', in its second for 'or by the changed thing *qua* other'. The point of the second sentence is evidently not to introduce a sense of 'capable' corresponding to passive capacities (that comes at 1019ᵃ35), but to indicate that each passive capacity is matched to an active one. Aristotle adds that passive capacities sometimes exist only if the affection "is for the better": e.g. flexibility is a *dunamis* in a watch-spring but not in a pit-prop.

1019ᵃ26. '*Dunamis*' can mean 'strength', 'resistance to change'. If a girder is incapable of being bent, or hard to bend, it is natural to say that that is "owing to a capacity"—its strength—rather than to an incapacity. Two points are compressed into the paragraph: resistance to change is a true capacity; liability to impairment is not a true capacity. Aristotle does not deny that liability to improvement is a true capacity.

1019ᵃ33. The five senses of 'capable' correspond to the first, second, second again, fourth, and third senses of 'capacity'. "What can keep a thing the same": i.e. prevent it changing. Having remarked that passive capacities include resistances to change, Aristotle adds that things can be actively capable in the same way; e.g. creosote has the capacity (not to improve wood but) to prevent wood rotting. This might still be regarded as a capacity to effect change—the creosote prevents the wood from changing in one way by changing it in another. Nevertheless the

description of something as preventing a change does not describe it as changing anything. If this is Aristotle's thought, the word he substitutes for 'change', translated 'alter' ('*metaballein*', Ross 'change'), is hardly helpful. (He often uses '*metaballein*' and '*kineisthai*' as synonyms; when they are distinguished, the latter usually excludes coming to be and destruction, see *Physics* V 1. 225ᵃ34 ff., 5. 229ᵃ31, ᵇ14.)

The parenthesis reverts to the point made at 1019ᵃ26–33 that a thing being destroyed or damaged exhibits a weakness or incapacity rather than a capacity. Though weak, such a thing must be capable of being destroyed, since 'is being' implies 'can be'. Two solutions are offered: either to be capable is to possess something, be it a capacity or an incapacity ("the lack of this"); or 'to be capable' has two senses, 'to possess a capacity' and 'to lack a capacity'.

1019ᵇ15. "In the same way": i.e. for the same reason. The reason why the boy and the eunuch are incapable of begetting is given in their descriptions as boy and eunuch; not so with the grown man. Aristotle thinks that 'boy' and 'eunuch' are different sorts of reason too: 'because he is a boy' amounts to 'because of his age' ("time" not "characteristic of its possession").

1019ᵇ21. "In respect of this incapacity": or rather 'in respect of incapacity', see 1019ᵇ35.

1019ᵇ22. On this sense compare *Prior Analytics* I 13, *De Interpretatione* 12, 13. The "falsehood" in the second sentence must be that a diagonal be commensurable (sc. with its side)—call it *S*—not that it is impossible that *S*, which is a truth. What, then, is *S*'s contrary? According to *De Interpretatione* 7. 17ᵇ22–3 and 10. 20ᵃ16–19 contraries cannot be true together but can be false together (let us call these strict contraries). Since it is not possible for a necessary proposition to be false even on its own, it follows that no necessary proposition can be the strict contrary of any proposition; but Aristotle says that the contrary of *S* is "not only true but also a necessity". This suggests that "contraries" are to include contradictories as well as strict contraries. We should presumably understand "a diagonal" in *S* to mean 'any (some) diagonal' not 'every diagonal' (although the latter too would make *S* a falsehood and impossible). If so, *S* is of a form which in any case has no *corresponding* strict contrary, but has a contradictory in 'no diagonal is commensurable'. Aristotle holds, then, that since the latter is necessary, *S* is impossible. His general claim is that if any propositions are contraries in the loose sense (cannot be true together), and if one of them is necessary, the other is impossible; cf. the thesis at Δ 5. 1015ᵇ6–9. He is not setting out that part of the square of opposition for modal words (see *De Interpretatione* 13. 22ᵃ24–31) which states that necessarily-*p* and impossible-that-*p* are

(strict) contraries; for the (contradictory) contraries S and not-S do not themselves include modal words.

Having shown that the falsehood S is impossible, Aristotle draws the inference (^b26) that it is necessarily a falsehood. In the fourth sentence "this" is no longer S, whose (contradictory) contrary has been shown to be (not only possible but) necessary, but impossible-that-S, which has possible-that-S for its (again contradictory) contrary: here Aristotle makes a modest contribution to the square of opposition for modal words. The main part of the sentence is an attempt to define the possible in terms of 'necessary', 'contrary', and 'false'. The "contrary" mentioned second is not the contrary of possible-that-p but, as Aristotle's example shows, the (contradictory) contrary of p, viz. not-p ("he is not sitting down"). So the definition runs: it is possible that p if it is not necessary that it is false that not-p, that is, if it is not necessary that p. This definition is both incomplete, since the possible includes also the necessary, and wrong, since the non-necessary may be impossible (see diagram).

'possible', 1019^b28–9

Aristotle's example does no more than show that possible-that-p and not-necessary-that-p are compatible (they are, of course, sub-contraries—one of them must be true). The same error occurs at *De Interpretatione* 13. 22^a27, and is corrected at 22^b10–28. If we *supplement* Aristotle's definition with the point made in the first half of the sentence, that 'possible' and 'impossible' are contraries, his contention will be that 'possible' is equivalent to 'neither necessary nor impossible'. This is one of the senses which he gives to 'admissible' at *Prior Analytics* I 13. 32^a18–21; it is also the sense sometimes given to the English 'contingent'.

Having wrongly defined 'possible-that-p' as 'not necessary that the-contrary-of-p (i.e. *not-p*) is false', Aristotle next (^b31–2) disconcertingly misreports and corrects his own error: 'possible-that-p' signifies 'not necessary that p is false'. "Signifies what is true": as before, this can be defended only if it means to convey that 'possible-that-p' and 'true-that-p' are compatible; cf. *De Interpretatione* 13. 23^a7–9. "And in another what admits of being true": the participle translated 'what admits of' (or 'admissible', *'endechomenon'*) is elsewhere rendered by 'possible', but here a verbal difference is called for. Does Aristotle mean that 'admissible' shares the meanings of 'possible' already given in the paragraph, or that it specifies a new one? In the table at *De Interpretatione* 13. 22^a24–31 the

two words are made equivalent, and *Prior Analytics* I 13. 32ᵃ18–21 gives as senses of 'admissible' both of the senses of 'possible' ('not impossible' and 'neither impossible nor necessary') confused by Aristotle in the present paragraph. Aristotle's actual usage, if it contrasts 'admissible' with '*dunaton*' at all, contrasts it with senses outside the paragraph (i.e. with 'capable', not 'possible').

1019ᵇ33. Greek mathematicians used '*dunamis*' to mean 'square' (of a number). For other uses see Heath, *Mathematics in Aristotle*, 207–8.

1019ᵇ34. "These things" are not, of course, squared numbers but 'possible' things. Aristotle contends that the senses of 'capable', as opposed to 'possible', all derive from 'actively capable'. To be *liable* to change is to have something else (or yourself) capable of changing you; to be *resistant* to change is to have nothing capable of changing you at all, or easily (but this equivalence cannot *explain* the existence of the sense 'resistant to change'); to be (we might say) *amenable* to change is to have something capable of changing you for the better ("possessing it in a particular way"). The summary omits the derivative sense of 'actively capable' given at 1019ᵇ11–15.

CHAPTER 13

Quantity is treated more fully in *Categories* 6. Here as there Aristotle employs not the abstract noun corresponding to 'quality' but an adjective (Latin 'quantum') which can also mean 'how much?', and mainly discusses the possessors of quantitative properties, not the properties themselves.

1020ᵃ7. The constituents of a quantity must have "the nature of a one and a this": hence, as Alexander says, they do not include forms (the constituents of a genus), which are not continuous and so not one (Δ 6. 1016ᵇ10), nor properties (the constituents of a state of affairs), which are not 'thises' (cf. Δ 25).

Aristotle proposes two criteria to distinguish pluralities from magnitudes: the former are (i) countable—i.e. admit plurals—and (ii) indivisible into continuous parts. The second of these (cf. *Categories* 6. 4ᵇ20–5ᵃ14) is not helpful: 'continuous' means 'having a common boundary' (*Categories* 6. 4ᵇ25–6, *Physics* V 3. 227ᵃ22), but we are not given rules for deciding whether e.g. adjoining rooms have a common boundary or two boundaries which touch. Aristotle does not acknowledge, but neither does he deny, that the same thing may be both a plurality and a magnitude.

"Breadths . . . depths": i.e. areas and volumes—Aristotle has no

separate words. Since length etc. are being treated as possessors of quantitative properties, it is appropriate to say that a line is a length, etc. But a length of what sort? (1) Euclid defines 'line' as 'length without breadth', but Aristotle's definition is certainly different from that. (2) Alexander takes 'line' etc. simply as answers to the questions 'what is a length?' etc. (3) Ross supposes that 'limited' goes not only with 'plurality' but also with 'length', 'breadth', and 'depth'. If so, what is its meaning? (i) In Euclid, 'finite'; but it is reasonable to say 'lines must be finite, lengths need not be' only if lengths are regarded as properties of lines, not items of which lines are examples. (ii) If 'limited' means 'discriminable (sc. not only in respect of quantity)', the meaning might be that e.g. the prime meridian and the 10′ meridian of longitude are the same length but not the same line; but the facts to which this interpretation draws attention are a good reason for refusing to *identify* any length with any line.

A separate problem arises over the definition of a number as a limited plurality. (i) Again, this might mean that 'infinite number' is a contradiction, while 'infinite plurality' is not, but such a rule is not hinted in any of the other Aristotelian definitions of number to which Ross refers. (ii) 'Two different numbers may be the same plurality.' This seems absurd. (iii) I 6. 1057ª3 defines a number as "a plurality measurable by one" (cf. N 1. 1088ª5–6, $Δ$ 6. 1016ᵇ17–21). Hence the point might be that a number has to be an integer, a plurality need not be; or (iv) that e.g. a sentence can be plural in more than one way—six words, ten syllables—but only one of these will be the number of the sentence, depending whether words or syllables or something else are the units of which sentences are made (cf. $Δ$ 6. 1016ᵇ17–31). (v) There is a difference in meaning between 'a plurality of so-and-so's' and 'n so-and-so's', where n is a number; but this of course does not establish a difference between 'a plurality of so-and-so's' and 'a number of so-and-so's'.

1020ª14. See notes on 1020ª26.

1020ª17. Largeness, narrowness, etc., differ from a line in two ways: (i) they are affections of a line and so not substances (strictly speaking lines are not substances either: M 3); (ii) their definitions, although including the word 'quantity' (for they are "affections of a quantity in their own right"), do not include the whole expression 'a certain quantity'. Aristotle divides "affections of a quantity in their own right" into two types: those represented by comparative adjectives, e.g. 'larger', are "so called . . . with reference to one another", those represented by positive adjectives, e.g. 'large', 'broad', are "so called . . . in their own right". This is verbally inconsistent with *Categories* 6. 5ᵇ16–18, "nothing is called large or small just in its own right, but with reference to something else"; but Aristotle's point is clear enough—'Callias is large' is,

but 'Callias is larger' is not, intelligible without knowledge of context (see Ackrill on *Categories* 7. 6ª36). Unlike the *Metaphysics*, the *Categories* classifies both these types as relatives rather than quantities, and 6. 5ᵇ11–29 defends that classification of the second type.

What are the "other things", sc. than quantities, to which "these names are also transferred"? (1) They might be such things as an agreement, to which we can apply the predicate 'broad' but which is not a quantity because we cannot apply e.g. 'two-foot broad', 'twice as broad' (cf. Ross and the contention in *Categories* 6. 5ᵇ11–29 and 6ª19–25 that quantitative affections have no contraries and admit of no degrees, true of 'two-foot broad' but not of 'broad'). (2) Aristotle may simply mean that quantitative affections can be predicated of coincidental quantities ('the artistic'), not only of quantities in their own right ('the body'); this would be true of both 'broad' and 'two-foot broad'.

1020ª26. An *F* is a quantity coincidentally if either (i) some but not all *F*s have quantitative properties (or it is possible but not necessary for an *F* to have such a property, 1020ª14–17, ª26–8), or (ii), where '*Q*' is a quantitative property word, '*F*s are *Q*' uses '*Q*' in a derivative sense (ª28–32). (ii) recurs at *Categories* 6. 5ª38–ᵇ10, but in that chapter time is treated as a primary quantity. The clause beginning "I mean" explains "affections". viz. derivatives. Non-derivative quantities are "amounts by which" a given thing is changed: e.g. the twenty miles which the train has covered, the twenty problems which the computer has solved. The train's actual movement or the computer's activity (change) is a derivative quantity which must be defined in terms of these; and lengths of time must in turn be defined in terms of movement or change (see the difficult chapters on time in the *Physics*, IV 10, 11).

CHAPTER 14

The more ambitious treatment of qualities in *Categories* 8 classifies them quite differently.

1020ª33. "Qualification": i.e. (here) quality, but Aristotle's word is the adjective (Latin 'quale') which at *Categories* 8. 10ª27–9 he distinguishes from the abstract noun (Latin 'qualitas'), and I have followed Ackrill in reserving 'quality' for the latter. Although differentiae are here described as qualities, and qualities in the "most fundamental" sense (1020ᵇ14), *Categories* 5. 3ª22 tells us that they, like substances, are "not in a subject", from which it might be thought to follow that they are not qualities. Aristotle is in a dilemma: differentiae answer the question 'qualis?' but also reveal, or at least help to reveal, essence (thus at *Z* 12. 1038ª19 he says "the last differentia is the substance of the actual

thing", but contrast *Topics* IV 2. 122ᵇ16, VI 6. 143ᵃ32). The right description is 'essential quality', but the system of categories, with its odd contrast between substance (or essence) and quality, cannot easily accommodate that notion. "The differentia in respect of substance": i.e. differentia in the technical sense, not mere difference.

1020ᵇ2. In Aristotle's day numbers were often represented by multi-dimensional arrangements of dots: thus 4 was a square and also tetra-hedral number, 6 a triangular and also oblong number. A number with two prime factors ("*x* times *y*", literally 'so many times so much') could be represented by a rectangle, a number with three ("*x* times *y* times *z*") by a rectangular-sided solid; see Heath, *Mathematics in Aristotle*, 208–9. If 'without angles' states the differentia of circle (1020ᵃ35), it might be argued that 'solid' states the differentia of a certain kind of number, and in general that all the qualities of changeless things (second paragraph) are differentiae (first paragraph). At 1020ᵇ15–17 Aristotle accepts the conclusion of this argument, but elsewhere he offers two replies: (i) some invariable conjunctions of properties do not delimit any form or species, e.g. 'male human' discussed in *I* 9 (this is one version of the doctrine of natural kinds); (ii) even if solid numbers did make a species, solidity could be a coincident, and so not a differentia, of that species, just as having three sides is an "invariable" coincident of a triangle (Δ 30. 1025ᵃ30–4). At ᵇ6 Aristotle generalizes his examples into the claim that any "constituent of the substance", i.e. necessary property, which like solidity in numbers is a non-quantitative property, must be a quality. What has happened to the other categories? The final parenthesis seems intended to explain why the qualification "apart from quantity" is necessary even in the case of numbers: for numbers do have quantitative properties (e.g. being 2 × 3) distinct from their substance (being 6).

1020ᵇ8. "Affection" may be meant to cover all the types of quality distinguished in the *Categories* as states, dispositions, natural capacities, affective qualities, affections, figure, and shape. Modification (tradition-ally 'alteration') is regularly defined by Aristotle as change of quality or affection: e.g. *Categories* 14. 15ᵇ12.

1020ᵇ12. In the *Nicomachean Ethics*, II 5. 1106ᵃ11–12 excellence and badness (virtue and vice) are classified as states; cf. Δ 20. 1022ᵇ10–12.

1020ᵇ13. "Affections of changeables *qua* changing": i.e. properties in respect of which they do change. "What is capable of changing or functioning in *this* way is good": even if this proposition were an analytic truth it would establish only that excellence is a capacity, not an affec-tion. *Nicomachean Ethics* II 5. 1105ᵇ19–1106ᵃ13 rejects both classifica-tions, taking 'affection' in the sense 'feeling'. In the last sentence it is

not clear whether Aristotle means that the goodness of inanimate things is not properly said to be a quality (Alexander) or (as Ross prefers) that inanimate things are not properly said to be good.

CHAPTER 15

1020ᵇ26. This chapter has little in common with the longer treatment of relatives in *Categories* 7. The threefold classification that it follows fails to cover some things, e.g. *large* and *larger*, acknowledged as relatives in the *Categories*.

1020ᵇ32. This paragraph is discussed by Heath, *Mathematics in Aristotle*, 209–11. Aristotle's "numerical relatives" are terms of ratios. (*a*) Double and half (sc. its half) stand in the ratio 2 : 1, (*b*) multiple and (its) sub-multiple in the ratio *n*:1, (*c*) one-and-a-half and its reciprocal in the ratio 3:2 and (*d*) one-and-a-bit and its reciprocal in the ratio *n*+1:*n*. In (*a*) and (*c*) the terms are "related by a definite number", i.e. the ratios consist of actual numbers; in (*b*) and (*d*) the ratios are algebraic. In (*a*) and (*b*) the terms are related by "a number relative to one", i.e. by a ratio expressible as an integer; in (*c*) and (*d*) the ratios are not expressible as integers but are numbers "relative to themselves", i.e. to numbers (one not being a number, Δ 6. 1016ᵇ17).
     In the fourth type of ratio the term is "related to its reciprocal by an indefinite number" (according to the emendation adopted in the OCT; Ross's alternative emendation gives "indefinite relative to its reciprocal"). At ᵃ3 Aristotle adds a fifth type (*e*), in which one term is "numerically wholly indefinite relative to" the other. The words suggest a ratio even more algebraic than (*b*) and (*d*), e.g. *m* :*n*, but Aristotle's example shows that he has in mind a quite different point: that when one term exceeds another—is "so much and something again"—the two may be in-commensurable. In what sense are such relations indefinite? He may mean that the formula 'so much and something again: so much' is even less specific than '*n*+1:*n*', if the 'something again' need not be com-mensurable with the 'so much' (in ᵃ8 "either equal or unequal" does not correctly express what must be his meaning, viz. 'either commensurable or incommensurable'). In that case he ignores definite irrational relations, such as √2 : 1. Or he may mean that irrational relations are indefinite in the quite new sense 'not numerically specifiable', given that irrationals are not to be deemed numbers ("number is not said of the non-commen-surable"). In that case the fifth type embraces not only indefinites in the first sense, like √*m* :*n*, but also definites in the first sense, like √2 : 1.

1021ᵃ9. Things equal, similar, and the same are numerical relatives because (i) their definitions bring in the word 'one' and (ii) one is the

measure of a number. For the latter see Δ 6. 1016ᵇ17–31. Equals stand
in the ratio 1 : 1 but, since one is not itself a number, this does not make
them numerical relatives in the *first* sense.

"Whose substance is one" is ambiguous (cf. 1016ᵇ5–6 and 8–9). (1)
Since the quality of *x* and *y* is one when both are e.g. pale, it ought to be
that their substance is one when both are e.g. men, even if not the same
man. (2) But if *x* and *y* may count as the same even when they are not the
same in number, it is not clear why their being e.g. the same colour is *not*
allowed to count as a case of sameness, but only of similarity. This
suggests that 'one in substance' here means 'one in number'. Cf. *B*
4. 999ᵇ20–2, *Z* 13. 1038ᵇ9–10, 14–15, *Z* 16. 1040ᵇ17.

1021ᵃ14. The same verb '*poiein*' is translated 'act' at the beginning of
the paragraph (as it was at 1020ᵇ30) but 'produce' at the end. The sense in
which numerical relatives have "actual functionings" is not described
in any of Aristotle's surviving works. Probably he means that e.g. an
architrave whose length stands in the ratio 1·618 to the height of a
column does not *act on* the column (actual functioning "involving
change", cf. Θ 6) but does *actually* stand in that ratio; see Ross. It is not
clear how far Aristotle would wish to extend the classes of capacity-
relatives and functioning-relatives to cover expressions which, like
'father', are not grammatically derivative from verbs. How about 'slave',
for instance?

1021ᵃ26. This is a difficult paragraph. Aristotle states four propositions
about the correlative pairs measurable/measure, knowable/knowledge,
thinkable/thought, and visible/sight:

(*a*)   although the thinkable (etc.) is a relative, it is not called think-
          able relative to, or of, something (ᵃ26–30)

(*b*)   a thought is called a thought relative to, or of, something (ib.)

(*c*)   'thinkable' signifies 'that of which some thought is a thought'
          (see ᵃ31)

(*d*)   a thought is not relative to that of which it is a thought (ᵃ32).

Two preliminary remarks may be made. (A) *Categories* 7 agrees that the
knowable and the perceptible are not "called just what they are *of*
something else", but offers a different reason for classing them none the
less as relatives, namely that "what is knowable is knowable *by* know-
ledge" etc. (6ᵇ34–6), and "we call relatives all such things as are said
to be just what they are, of or than other things, or *in some other way* re-
lative to something else" (6ᵃ36–7). (B) Later in the same chapter (7ᵇ22–
8ᵃ12) Aristotle makes the good point that knowledge and the knowable
(and perception and the perceptible) are not "simultaneous by nature",
that is, they do not "reciprocate as to implication of existence" (*Categories*

13. 14ᵇ27–8). The application of this point to the present paragraph is unfortunately spoilt by Aristotle's (i) defining the thinkable as "that of which there *is* thought" (not 'can be'), and (ii) arguing at *De Anima* III 2. 425ᵇ26–426ᵃ26 that in *that* sense the visible and sight are simultaneous by nature, because without sight there is nothing which is seen as e.g. pale or dark.

The paragraph raises two questions: what is the meaning and justification of (*d*), and how does (*d*) support (*a*)? If we apply the definition in (*c*) to (*b*), we get the proposition that 'a thought is called a thought relative to that of which it is a thought'. In spite of (*d*), Aristotle's objection to this proposition is not that it is false (see ᵇ1) but that it "says the same thing twice". Evidently, then, the contention inexactly conveyed by (*d*) is that its denial is an *unhelpful* thing to say, and cannot serve to identify anything as a thought, sight, etc. But how can this contention support or explain proposition (*a*)? It would be no less unhelpful to say 'a slave is the slave of that of which he is a slave'; yet that of which something is a slave, viz. a master, is certainly a master relative to, and of, something. One difference between these two cases is as follows. If *A* is a master and *B* his slave, it is possible to identify *A* as *B*'s master or *B* as *A*'s slave (although not at the same time to identify each by his relation to the other). But if *C* is a thought and *D* its subject-matter, it is not possible to identify *D* as the subject-matter of *C*, because it is necessary to identify *C* as the thought of *D*. Thoughts, sights, etc.—and measures, i.e. units of measure—are thus relative in a strong sense: not just that the description of something as a thought invites the question 'of what?' but that *any* description of a thought identifies it only by reference to a different entity, its subject-matter. In this strong sense thinkables etc. are not relatives; and if they were, we should be condemned to the hopelessly circular method of identification by means of propositions such as the contradictory of (*d*).

If Aristotle means to convey this distinction, his exposition of it is faulty in three ways. (i) He does not distinguish the thesis that thinkables etc. are not relatives in the strong sense from the purely grammatical point, rightly spurned in the *Categories*, that thinkables are not called thinkables *of* anything. (ii) He holds that of the four kinds of relatives exemplified by thoughts, masters, slaves, and thinkables, only the last are relatives in a special way ("from the other thing being relative to them"), when in fact it is the first kind that are special, being relatives in a stronger sense than the other three. (iii) Proposition (*d*) fails to bring out the difference between other correlatives and those with which the paragraph deals.

1021ᵇ3. Aristotle is no doubt influenced by the argument: knowledge is a relative; doctoring is a (form of) knowledge; therefore doctoring is

a relative. But *Categories* 8. 11ᵃ24–32 rejects this conclusion: "for knowledge, a genus, is called just what it is, of something else (it is called knowledge of something); but none of the particular cases is called just what it is, of something else . . . Thus the particular cases [e.g. grammar, music] are not among the relatives." Aristotle is in a dilemma. On the one hand, he often describes categories as "genera of the things-that-are", and the species of a species must be a species of its genus (*Categories* 3. 1ᵇ10–12). On the other hand, his linguistic tests for membership of the category of relatives resist this treatment (rendering '*x* is in the category of relatives' a referentially opaque context, if '*x*' has to range over things rather than words). See Ackrill's note on *Categories* 8. 11ᵃ20.

1021ᵇ8. Aristotle implies that possessors of doubleness are double in their own right (sc. *qua* being possessors of doubleness, not essentially).

CHAPTER 16

The three senses of '*teleios*' correspond pretty exactly to the English 'entire', 'perfect', and 'complete'.

1021ᵇ14. A thing can be perfect, and therefore good, of its kind, yet bad because its kind is bad: it is a bad thing to be a good thief.

1021ᵇ23. The word for "fulfilment" is '*telos*', from which '*teleios*' derives. The traditional translation 'end' suppresses this connection, and obscures the point that life's end, or death, *teleutē*, is a *telos* in a subsidiary sense only ("by transference"), because it is not commonly regarded as the zenith of life (at *Laws* 834 c 2 Plato speaks of full-grown horses as "possessing their *telos*"; cf. the joke at *Physics* II 2. 194ᵃ30–3). On the other hand, Aristotle is wrong to treat the expression 'completely destroyed' as a case of transference: the thing destroyed is 'completed' in a degenerate sense, but its destruction is completed in the full sense. A task is no less completed when its fulfilment is undesirable.

1021ᵇ30. In his recapitulation Aristotle attempts to reduce the three senses he has found to two, but his definitions really fit nothing but the two subdivisions of sense 2, 'complete doctor' and 'complete thief'.
    "The rest are made so by virtue of these": Alexander instances a perfect education—one that makes the pupil perfect; a complete book— one whose contents are complete; a perfect spear—one that only the perfect Achilles can wield.

CHAPTER 17

Of the four senses listed by Aristotle only the first and third are found in his own writings. The purported sense 'substance' is possibly suggested by Plato's distinction between limit and the unlimited (*Philebus* 23 ff.). The "limit of acquaintance" is perhaps its origin (see Δ 1. 1013ª14–16), perhaps its completion (cf. Z 1. 1028ª36–7 "we hold that we know each thing most of all when we are acquainted with what a man, or fire, is").

"I.e. that for which": in the OCT the brackets close before this phrase, making it explanatory of 'fulfilment'.

Aristotle does not attempt to justify his principle that if an *A* is a kind of *B* every sense of '*A*' is a sense of '*B*'. It is not in fact true that origins in all of the senses distinguished in Δ 1 are limits.

CHAPTER 18

1022ª14. "By" translates the preposition '*kata*'; for the philosophical senses in the first paragraph 'by virtue of' or 'in respect of' would be more natural English, and those renderings have mostly been adopted elsewhere in the translation. For the senses of 'cause' see Δ 2.

p. 207   **1022ª24.** 'In its own right' is the rendering mostly used in the translation, in preference to the more literal 'by itself'. This and the next paragraph parallel *Posterior Analytics* I 4. 73ᵇ5–10. ' "Animal" is part of Callias' formula' expresses in the formal mode what 'animal (i.e. being an animal) is part of Callias' substance' expresses in the material mode (see Δ 24. 1023ª35–6): viz. that Callias is essentially an animal. The idiom used in ª26–7, '*F* is what it is to be Callias', conveys that *F* (i.e. being *F*) is the whole of Callias' essence—i.e. the predicate '*F*' and those which it entails are the only essential predicates of Callias. Even if Aristotle is right to cite the name 'Callias' itself as such a predicate (ª27), it is surprising that he does not cite 'man', which in his opinion gives a true, and at the same time non-trivial, answer to the question 'what is it to be Callias?' "And what it is to be Callias" (ª27) may mean 'and anything else that answers the question "what is it to be Callias?" '; otherwise "and" must have the force 'i.e.'.

The senses of 'in its own right' in this paragraph and the next evidently correspond to the first sense of 'by' in 1022ª14. Callias is good *by* (virtue of) good itself, viz. the affection goodness; on the other hand he is a man and an animal *by* himself, and so (it is implied) not by virtue of the affections manhood and animality. In this implied denial Aristotle may be influenced by the following considerations. Because 'good' is an

adjective, Greek usage permits its employment not only to describe possessors of the affection or property goodness but also as a name of goodness itself (*Z* 6. 1031ᵇ22–8). This being so, it is easy to suppose that the relation between goodness on the one hand and good men, good apples, good arguments, etc., on the other hand is a relation between two types of good thing, the first type good 'by itself', the second type good by having the first somehow in it (cf. *Categories* 5. 2ᵃ29–34; in a similar way he will argue in 1022ᵃ29–32 that a man is pale *by* having a pale surface somehow in him). Thus in place of the analysis familiar to us, 'an apple is good by *being* something that *has* good(ness)', Aristotle's analysis is 'an apple is good by *having* something that *is* good (in the primary sense)'. This analysis is not available in the case of nouns like 'man' and 'apple', which do not ever function as names of properties and so cannot be thought of as applying to concrete individuals in a merely secondary sense. Socrates is a man not by having something in him that is a man, but simply by being a man—"by himself". But (i) this argument does not prove it false to say that Callias is a man by (virtue of) humanity, since it is wrong to suppose that that means 'by virtue of humanity's being a man' (cf. Locke, *Essay* II. 23. 3); and (ii) the argument does not lead to the conclusion that Aristotle wants, for it would make Callias e.g. a bachelor 'by himself' (since 'bachelor' is a noun) although he is not a bachelor essentially: noun-predicates do not coincide with essential predicates. There seems, therefore, to be an error embodied in Aristotle's choice of the expression 'by itself' or 'in its own right' as a mark of essential predication.

1022ᵃ27. See preceding note.

1022ᵃ29. This paragraph parallels *Posterior Analytics* I 4. 73ᵃ37–ᵇ3. The primary pale thing is 'the pale itself', i.e. the affection pallor (cf. *Z* 6. 1031ᵇ22–8). But among the "recipients" of this affection, i.e. what *we* should call pale things, some are again prior to others; for instance a man is pale 'by virtue of' his skin's being pale (1022ᵃ16–17). This second contrast leads Aristotle to say that the man's skin, and in general surfaces, are in a new sense pale 'by virtue of themselves'. The priority here invoked is conceptual: it is not possible to understand what it is for a man to be pale without understanding what it is for a surface to be pale, but the converse is possible. This sense of 'in its own right' is opposed to the sense of 'coincidentally' used e.g. at *Categories* 6. 5ᵃ38–ᵇ4.

Aristotle's contention that a man is alive in his own right because a part of him, his soul, is the primary recipient of life should be contrasted with *Physics* V 1. 224ᵃ21–34 and VIII 4. 254ᵇ7–12, where he says that a thing will not change or be changed in its own right if it does so by having a portion of itself do so.

1022ᵃ32. The reference to the multiplicity of 'causes' of a man seems at once to disqualify that example from displaying the sense of 'in its own right' that the paragraph defines. Yet it must be intended to display it; so the meaning must be that although many causes (or reasons) *can* be given to explain why *something* is a man, no reason *need* be given to explain why *a man* is a man. 'Why should the tallest animal on this farm be a man?' makes good sense (answer: 'it's a pig farm'), but not 'why should a man be a man?' nor, less trivially, 'why should a poet be a man?' The latter are, in a way, self-explanatory. This sense of 'in its own right' is opposed to the sense of 'coincidentally' discussed at *Δ* 30. 1025ᵃ21–30. It reappears at *Posterior Analytics* I 4. 73ᵇ10–16.

1022ᵃ35. The text and punctuation of this final sentence are altogether dubious. The translation adopted follows Ross's reading, though without any strong conviction that it can bear the meaning that he gives it, viz. 'an *F* is in its own right what holds good of *F*s alone, and of all *F*s'. If this is right, the sense of 'in its own right' is that used at *Δ* 30. 1025ᵃ30–4: a triangle is in its own right a figure whose angles add up to two right-angles, because all and only triangles are such (cf. *Posterior Analytics* I 4. 73ᵇ25–74ᵃ3).

CHAPTER 19

It is doubtful whether Aristotle's word, any more than its English equivalent 'disposition', necessarily connoted an arrangement of parts. In *Categories* 8 Aristotle himself uses it (Ackrill 'condition') to cover any qualities that "are easily changed or quickly changing", and although the examples given there, hotness and chill and sickness and health, would have been thought by him to involve arrangements of the parts of the bodies that have them, that fact is not mentioned in the definition. An arrangement by capacity is perhaps an ordering of (non-spatial) parts with respect to strength or importance, as in the dispositions of democracy and daydreaming. Ross suggests that an arrangement by form is the classification of forms or species under a genus, i.e. a tree of Porphyry; if so, the genus would be the whole whose disposition consisted of the arrangement of its species as parts (cf. *Δ* 25. 1023ᵇ17).

CHAPTER 20

'*Hexis*', the verbal noun from '*echein*', to have or possess, has three main senses, (1) possession, (2) state, (3) wearing. In this chapter Aristotle ignores sense (1), in which '*hexis*' is opposed to 'lack' or 'privation' (see *Categories* 10. 12ᵃ26–13ᵃ17). Sense (2) arises from the common Greek

construction of the cognate verb *'echein'* with an adverb, whereby for instance 'I have well' means 'I am in a good state' (cf. *Nicomachean Ethics* II 5. 1105ᵇ25–6). In his second paragraph Aristotle explains sense (2) by means of the word 'disposition', although in *Categories* 8. 8ᵇ26–9ᵃ13 states and dispositions are distinguished as different kinds of quality, and the former include knowledge, which is not a matter of being disposed well or ill.

Aristotle may have been prompted to give prominence to the special sense (3) in which *'hexis'* means 'wearing' by a passage in Plato's *Theaetetus*. Both Plato and Aristotle make play with the distinction between possessing and using (Plato, *Euthydemus* 280 bd, Aristotle, *Nicomachean Ethics* I 8. 1098ᵇ31–1099ᵃ7) and between being in a certain state, e.g. being virtuous, and functioning in accordance with that state, e.g. doing something virtuous (*Nicomachean Ethics* X 6. 1176ᵃ33–ᵇ2). Commonly the word *'hexis'* is used for the first member of this pair; but at *Theaetetus* 197 bc the *hexis* of knowledge is compared with wearing a coat ˙and having hold of birds in an aviary, and contrasted with the mere possession (*ktēsis*) of these things. In his first paragraph Aristotle draws attention to this deviant sense, in which *'hexis'* goes on the same side of the distinction as 'functioning'.

When he says that "it is not possible to possess this kind of possession", he implies not that other 'functionings' can be possessed, but that other kinds of *hexis* can be. Thus one can speak of having or possessing a state of health, but not of possessing the wearing of clothes or the exercise of sight (or indeed the possession of sight). But the reason Aristotle gives for this restriction is inadequate, for the possibility of possessing a wearing would generate a regress only if that possession itself had the sense 'wearing'; yet we do not *wear* a state of health. The truth is that his regress argument explains only the impossibility of possessing a genuine possession, a case which he does not mention.

CHAPTER 21

This brief chapter does not give a satisfactory survey of the senses in which Aristotle actually uses the word 'affection' (*'pathos'*), the chief of which are: (1) state or condition, (2) property, (3) coincident, i.e. non-essential property, (4) quality, (5) feeling, (6) happening, (7) misfortune. 'Modification' (traditionally 'alteration') is defined by Aristotle as "change in respect of quality" (*Physics* V 2. 226ᵃ26–7) and as "alteration in respect of affection" (*Δ* 2. 1069ᵇ9–12). Qualities "in respect of which it is possible to be modified" can be contrasted, therefore, only with qualities in respect of which no change is possible at all. These are differentiae, i.e. essential qualities (cf. *Topics* IV 5. 128ᵃ26–8, *Physics* V 2. 226ᵃ27–9). In the discussion of quality in *Categories* 8 affections

are treated as a species of quality (9ᵃ28–9), but later distinguished from qualities (10ᵃ9–10).

It is characteristic of Aristotle's slipshod semantics that he uses three different types of expression, 'the pale', 'sweet', 'heaviness', as names of qualities. 'The pale' can serve to name the quality pallor, but also means 'that which has pallor'; 'pale' and 'sweet' on their own are not names at all.

For this chapter's second sense, "actual modifications", Aristotle sometimes prefers the term *'pathēsis'* (*Physics* III 3. 202ᵃ22–4).

CHAPTER 22

'*Sterēsis*', 'lack' (traditionally 'privation'), derives from a verb whose main passive sense is 'be deprived of', 'lose'; but the sense 'loss' (1022ᵇ31, cf. *Δ* 5. 1015ᵃ24) is much less common than 'lack' in Aristotle. Possession and lack are also discussed at *Categories* 10. 12ᵃ26–13ᵃ17; see also *Θ* 1. 1046ᵃ31–5.

1022ᵇ22. *Γ* 2. 1004ᵃ10–16 describes a lack, by contrast with a denial, as implying "a certain nature [or characteristic] . . . as the subject of which the lack is stated": i.e. for all *F* there is some nature *G* which everything lacking *F* must possess. Thus what lacks sight must possess (presumably) eyes; so that the *Γ* 2 sense differs from that of the present paragraph, in which plants are said to lack sight. Indeed, if we can assume that every possession is characteristic of something or other, the sense given in the present paragraph ignores the distinction between lack and denial altogether. Unfortunately it is not clear whether or not that assumption may be made, since Aristotle does not indicate the criteria for being "characteristic". When he says in the next paragraph, for instance, that sight is characteristic of the genus within which moles are a species, does he mean that most members of the genus see or that all members of the genus have the apparatus for seeing, even if not in working order?

1022ᵇ27. "And equally too if . . .": does Aristotle mean 'only if' (e.g. that a man *without* uncharacteristic visual powers—eyes in the back of his head, the ability to see through fog or to discern the stars in daytime—is *not* said to lack sight), or 'if' (e.g. that a man with *none but* such uncharacteristic powers *is* said to lack sight)?

1022ᵇ32. According to *Prior Analytics* I 46. 51ᵇ25–8 predicates such as 'is invisible', 'is footless', are not equivalent to 'is not visible', 'is not footed', since the former "have a certain subject", i.e. imply some positive property. In the language of the present chapter, what is invisible must be characteristically visible, and sounds, for instance, are neither visible nor invisible. Cf. *I* 4. 1055ᵇ8–11.

1023ᵃ2. Cf. *Δ* 12. 1019ᵃ23–6.

1023ᵃ4. For intermediate states see *Categories* 10. 11ᵇ38–12ᵃ25 and 12ᵇ26–13ᵃ17.

CHAPTER 23

This is the ordinary word for 'have' ('*echein*'); it is mostly rendered by 'possess' in this translation. Aristotle's four senses answer to 'control', 'harbour', 'contain', and 'restrain'. His words for 'wear' ('*ampechesthai*'), 'contain' ('*periechein*'), and 'fuse' ('*sunechein*') are all compounds of '*echein*'. Things fused are continuous (*sunechēs*, see *Δ* 6. 1015ᵇ36 and *Physics* V 3. 227ᵃ11–12). For the treatment of the Atlas myth by "authorities on nature" see *De Caelo* II 1. 284ᵃ20–6.

We must understand Aristotle to mean that *being in* is the converse relation to *possessing*: the city is in (? the power of) the tyrant, the disease in the body, the liquid in the bucket, and the overlying weights in (? bearing on) the columns. The first and last of these senses seem highly strained.

There is an independent discussion of the senses of 'possessing' in *Categories* 15.

CHAPTER 24

1023ᵃ26. "Everything meltable is out of water": at *Δ* 4. 1015ᵃ10 the same proposition is stated tentatively, which encourages the opinion that what Aristotle means by it is that meltables are composed *entirely* of water. *Meteorologica* IV, possibly not by Aristotle, holds that true of bronze (IV 10. 389ᵃ8), but states it of the whole class of meltables only with qualifications (IV 8. 385ᵃ25–33) and exceptions; e.g. iron, which is meltable (IV 6. 383ᵃ27–30), is compounded of water and earth (383ᵃ32). It is impossible to be sure, then, whether Aristotle is saying that the "first genus" of a thing's matter is any element which the matter contains, or only that element (if any) of which the matter is solely composed—so that an iron statue is not "out of" water, although it contains water. If the latter is right, Aristotle may intend—but this is also unclear—a similar restriction on the "last form" or 'infima species' of a thing's matter, to the effect that a partly iron statue is not "out of" iron, although it contains iron.

1023ᵃ31. A ball may be (A) made out of bronze; in another sense, not separately listed, it is (B) out of bronze plus sphericity (its matter plus shape). Differently again, the top half of the ball is (C) a part out of what

is itself (B) out of certain matter and shape. Having slipped from talking of matter to talking of matter-plus-shape, Aristotle feels it necessary to justify his implied claim that only the latter is a "whole": the shape brings "fulfilment" to the matter.

1023ª35. As the word 'man' is equivalent to an expression in which 'two-footed' is a part, so, according to Aristotle's primitive theory of meaning, the form (? concept) *man* has the concepts *two-footed* and *animal* as parts; and *two-footed* and *animal* are the non-perceptible matter of the form *man* (cf. Δ 25. 1023ᵇ22–4). Verbal "elements", i.e. sounded letters, are both the perceptible and the non-perceptible matter of syllables: the elements themselves are constituents of the syllables, and the word 'element' is a constituent of the definition of 'syllable' (Z 10. 1034ᵇ25–6).

1023ᵇ3. Why does Aristotle say that plants are made out of "a certain part" of earth? He cannot mean that plants do not, either severally or collectively, use up all the earth there is, for that is true of, say, the relation of statues to bronze; nor that plants contain in them some but not all of the elements of earth, for he believes that earth is itself an element.

1023ᵇ5. Night is "out of" day not only in the sense of succeeding it ("successive in respect of time") but in the stronger sense of replacing it ("having alteration into one another").

CHAPTER 25

Although Aristotle undertakes to explain the word '*meros*', 'part', he substitutes in two places a diminutive form, translated 'portion'.

1023ᵇ12. "What is subtracted from a quantity *qua* quantity" is any-thing whose subtraction involves a diminution of size; Alexander remarks that qualities like sweetness and heat are not parts of things though subtractable from things.

1023ᵇ15. The parts "which give the measure of a thing" are those which divide it without remainder, its aliquot parts or factors.

1023ᵇ17. Aristotle's treatment of genera and forms as both non-quantitative and related as whole to part is indicative of his vagueness about their status. *Being negro* is not a part of *being human*, and *humanity* has parts only because the word is taken to denote the human race, which is a quantitative set or class.

1023ᵇ19. The bronze cube and the bronze ball are examples of "something that possesses a form". Being quantities, they will also have

parts in the first sense; but the cube's bronze material and angular shape are 'parts' in a new sense, because they cannot be "subtracted from a quantity *qua* quantity"—without them it would be, perhaps, a copper cube or a bronze pyramid, not a smaller bronze cube.

1023^b22. The division of a form into parts, mentioned at 1023^b20, is not illustrated until ^b22: if 'is a *G*' is part of the definition of 'is an *F*', *being a G* is part of the form *being an F* (cf. *Δ* 24. 1023^a35–^b2).

CHAPTER 26

1023^b26. In the first clause (^b26–7) Aristotle explains what more is required of a whole than containing parts, viz. that it contain all the parts of that whole. He might have added that anything containing parts could be called a whole *something* (but not always "naturally"?) e.g. a period containing nine months is a whole nine-month though not a whole year.

In the rest of the paragraph from ^b27 he distinguishes two relations that may hold between a whole and its parts. The first (^b29–32) is the relation of a class ("universal") to its members. Nothing in *Δ* 25 corre-sponds to this section (1023^b17–19 concerned class-inclusion), in which Aristotle avoids the word 'part' in favour of the vaguer 'contents'. The word for 'whole' ('*holos*') is cognate with his technical term 'universal' ('*katholou*'). A universal whole is distinguished by being predicated of its contents severally, as the genus *animal* is predicated of men, horses, and gods: they are "all—each one—one thing", i.e. one and the same thing (the words "each one" mark off this relationship from that of, say, a shoe to its parts, which are collectively but not severally a shoe).

After ^b32 Aristotle turns to the relation more naturally described as that of whole to part, and treated briefly under the first sense of 'part' in *Δ* 25. His opening remark implies that he takes this new relation to be confined to wholes that are "continuous and limited". He may think that such discontinuous wholes as the (unlimited) genus *animal* or a (limited) barnful of animals have been disposed of in the preceding lines; but that is not so, since those lines examined a particular relation of such groups and classes, viz. to their members, and they are related to their sub-groups in a different way (it is not true that each *kind* of animal is an animal). Aristotle also ignores such discontinuous wholes as the parts of an unassembled toy ('does that box contain the whole aeroplane?'). These cannot be intended by the "potential constituents" of ^b34, which he tells us are (i) the constituents of something continuous and (ii) the *prime* case of a continuous and limited whole. On the contrary, "potential

constituents" seem to be parts which could be but never have been *separated*: e.g. an island is less of a whole if an arm of the sea used to divide it into two. That would explain why he thinks artefacts less good examples of wholes than most natural objects (ᵇ34–6, cf. *Δ* 6. 1016ᵇ11). It remains puzzling that he confines his attention, in this section, to quantities that are continuous and limited.

1024ᵃ1. This paragraph tacitly drops the requirement of continuity, but seems to imply still that wholes must be limited (if Alexander is right in so interpreting "possessing a beginning, a middle, and an end"). At any rate we are not told under what conditions, if any, quantities not of that kind are called wholes. Aristotle proceeds to distinguish two types of limited quantity: type 1 are those in which position (sc. of the parts) makes no difference, type 2 those in which it makes a difference. The clumsy expression "any that admit both" in effect subdivides the latter into type 2*a* quantities, in which position makes a difference to the shape but not the nature, and type 2*b* quantities, in which it makes a difference to the nature. Types 2*a* and 2*b* are 'wholes', types 1 and 2*a* 'alls'. There is a distinction drawn in the passage between the singular and plural of the Greek word for 'all'; for the sake of clarity in the translation, Aristotle's singular has been rendered by the singular 'all' (as in 'all the wine'), his plural by 'every' (as in 'every house', i.e. 'all (the) houses'); but in ᵃ3 the Greek plural means 'instances of (the singular) all', hence "alls". In English we may use the singular 'all' without restriction ('all the wine', 'all the house'), but 'whole' only of countables (not 'the whole wine'). Aristotle's usage is, rightly or wrongly, different: he disallows e.g. 'all the house' under 2*b* and allows 'the whole wax' under 2*a*, and the distinctions that he bases on these words have nothing to do with countability.

When he says that position makes a difference to the shape of wax he presumably means that the shape of a piece of wax can be changed by rearrangement of its parts. Type 1 quantities are therefore those in which this is not possible, i.e. fluids. But Aristotle's example, water, is an *un*limited quantity, and should be replaced by ponds, cupfuls of water, etc. Type 2*a* quantities are homogeneous non-fluids, but (i) it is a mystery how Aristotle imagines that his second example, a cloak, is something whose nature will survive transposition and (ii) we might expect, following *Δ* 6. 1016ᵇ11–17, that nothing whose nature survives transposition would be a whole. No examples are given of the third type, 2*b*; apart from ordinary objects like shoes and houses we may instance, with Ross, the (discontinuous) musical scale mentioned in the next chapter (1024ᵃ21).

1024ᵃ8. The purpose of the final sentence is perhaps to sanction the use of 'every' ('all' plural) with words before which 'all' (singular) has

been disallowed. It is unclear whether every case of a singular 'all' can, like 'all this number', be paraphrased in terms of 'every'.

CHAPTER 27

This word, '*kolobos*', is hardly used by Aristotle outside the zoological works, and the reason for its inclusion here is a mystery. The chapter, alone in *Δ*, does not distinguish more than one sense; but it is an admirable example of a definition by division. Perhaps it started life as an exercise, set by or to Aristotle, which was commended and preserved as a model answer.

A *kolobos* thing is truncated, stunted, lopped, docked, or otherwise abbreviated.

"It must still be a cup" (ᵃ15): or perhaps, as the argument requires, 'the [sc. same] cup must still be'.

CHAPTER 28

1024ᵃ29. Aristotle's awkward definition of the everyday sense in which '*genos*' means 'family' or 'clan' is intended to convey that a family is an unbroken succession of offspring and that e.g. 'Hellen's family still exists' means 'the succession of offspring is unbroken from Hellen's time to the present day'. "Things possessing the same form": thus Homer and the Iliad do not make a family.

1024ᵃ31. "Brought them into existence": the verb here translated 'bring', '*kinein*', is elsewhere 'effect change', as at 1024ᵇ8 which summarizes this paragraph. For the opinion that mothers contribute matter and not form to their offspring see *De Generatione Animalium* II 4. 740ᵇ24–5 and other references in Ross.

1024ᵃ36. This and the next paragraph are summarized together at 1024ᵇ8–9, which defines in a third way the same sense as they define in a first and a second.

1024ᵇ6. The "subject" of a differentia (e.g. two-footed) is what it divides (animal) rather than what it constitutes (man) or is otherwise predicated of (Socrates). Aristotle seems to picture it as the dough from which a cutter cuts shapes, a picture which fits both the relation of genus to differentia and form and the relation of matter to form and concrete individual. This similarity may be sufficient to justify use of the word 'matter' to cover genus, but genera (such as animal) remain quite a

different kind of matter from stuffs (such as flesh); cf. *Z* 12. 1038ᵃ6–8, *I* 8. 1058ᵃ23–4.

1024ᵇ9. "First subjects"; both words are difficult. (1) If they mean 'highest genera', i.e. figures of predication or categories, the proviso about analysis is redundant (see 1024ᵇ15–16). (2) If they mean 'last forms' ('infimae species'), the proviso about analysis cannot be satisfied. (3) Alexander plausibly construes the proviso as applying not to forms or genera but to kinds of matter, such as gold and silver, which have a common 'analysis' because both are composed of water (*Meteorologica* IV 10. 389ᵃ7); hence 'last matter'. So Ross, and compare the first of the two senses of 'first matter' at *Δ* 4. 1015ᵃ7–10, and 'last matter' at *Δ* 6. 1016ᵃ 19–20, 1017ᵃ5, *Δ* 24. 1023ᵃ27–8. (4) But sense (3) will not fit the first subjects *of* form and matter; in those cases, as Alexander says, the meaning must be "the parts of their defining formulae".

1024ᵇ12. Cf. *Δ* 7. 1017ᵃ22–31.

CHAPTER 29

Aristotle commonly prefers the noun 'falsehood' to the neuter singular adjective 'false', although some of the things discussed in this chapter— e.g. dreams—would not naturally be called falsehoods by us. His classification is surprising. We should expect the main distinction to be between false objects or events—i.e. things that are not as they seem, like dreams, stage scenery, and false beards—and false statements and beliefs. Instead, he ignores statements and beliefs in favour of states of affairs (a diagonal's being commensurable with its side, your sitting down), which he groups, together with things that are not as they seem, as false "actual things". In the second paragraph he deals not primarily with false statements (like 'a circle is a plane figure contained by three straight lines') but with descriptions (like 'a plane figure contained by three straight lines') which are false *of* one thing, true of another. The examination of truth and falsity in *Θ* 10 likewise promises a treatment of "actual things", but in fact discusses beliefs and statements, with particular attention to a special problem not raised in the present chapter. See also *E* 4.

1024ᵇ17. The treatment of false states of affairs is not adequate. Aristotle says that your sitting down is false when it is "not compounded", i.e. when you and sitting down do not combine. If they do not, there is no such state of affairs: a false state of affairs is one that does not exist ("in this way these things are not things-that-are"). This ignores the real problem, for false *statements* are not non-existent. We might say that a

false statement describes what is actually non-existent, or not combined, *as* existent or combined (cf. Θ 10. 1051ᵇ3–5), so revealing the crucial fact, carefully expounded by Plato in the *Sophist* (260 c–264 b), that every statement must describe something as something, say something about something. But if so, talk of things combining into states of affairs does not help to explain falsehood. 'You are sitting down', if false, is false not because it describes as compounded what is not compounded or as existent what is not existent, but because it describes as sitting down what is not sitting down. If the latter explanation is not already intelligible, the former will not make it so.

1024ᵇ26. 'The formula (*logos*) of so-and-so' is commonly used by Aristotle to mean 'the *logos* that says what it is to be so-and-so'. An individual such as Socrates cannot have more than one *logos* of this kind, in the sense that true answers to the question 'what is it to be (that) Socrates?' cannot have more than one meaning. On the other hand, more than one non-synonymous *description* can be truly given of the same Socrates. In this second "way" the *logos* 'artistic' will be true of Socrates provided that "Socrates and artistic Socrates are . . . the same", i.e. Socrates is artistic. Why does Aristotle say that false *logoi* are "*qua* false, of things that are not" and "taken baldly, the *logos* of nothing"? A *logos* may be a complete statement, true or false, or a predicative description, true or false *of* something. Aristotle insists on both taking some *logoi* to be false, not false of so-and-so (hence complete statements), and taking all *logoi* to be *logoi* of something (as descriptions are). Hence false statements must describe false states of affairs which, as we have seen, are "things that are not".

The objection to Antisthenes is a bit muddled. Aristotle attributes to him the restrictive theory that a description of Socrates must describe what it is to be Socrates (cf. *Sophist* 251 ac), and claims that this "results" in denial of the possibility of contradiction. But the result does not follow unless descriptions of what it is to be Socrates have to be *correct*; and if they have to be correct, it follows without the restriction, since even if there were many descriptions of Socrates they would not contradict one another so long as none of them were false. Aristotle sees, of course, that Antisthenes' mistake had something to do with confusion about falsehood (ᵃ32 "that is why"). Antisthenes must have denied the possibility of falsehood, and his argument must have been: since false descriptions describe "things that are not", things that are, like Socrates, cannot be falsely described. The argument's fallacy depends on the ambiguity of 'describe things that are not': 'Socrates is handsome' describes a state of affairs that is not, but also describes Socrates, who is. But Aristotle does not comment on this ambiguity. Instead, he merely asserts that a particular thing may be described (*legesthai*) by the *logos* of (what it is to be)

something else. If to be two (e.g. miles) is to be double (one mile), to be eight or nine miles is not to be double one mile; but we may describe eight miles as double (truly, for it is double four miles), and we may describe nine miles as double (falsely, for it is not double any whole number of miles). It is probable that "another's formula" means 'the expression that says (truly) what it is to be something else'. If so, Aristotle leaves no room for falsehoods like 'Socrates speaks' or 'Theaetetus flies', for in his view 'speaks' and 'flies' do not express what it is to be anything (speech does not speak at all, and speakers are not identified by the activity).

1025ᵃ1. Aristotle's false man is not the man prone to error but the deceiver or impostor. In Plato's *Hippias Minor* Socrates argues that the "wily" Odysseus must be capable of truth as well as falsity, and so true as well as false (369 b 3–7). With Aristotle's reply Ross compares *Nicomachean Ethics* IV 7. 1127ᵇ14: "it is not the capacity that makes the boaster, but the choice." Hippias doubtless had the same point in mind when he objected against Socrates (370 e 8–9) that Odysseus was false willingly or intentionally (the Greek '*hekōn*' covers both). At ᵃ8 Aristotle digresses to deal with Socrates' response to this objection. His cavil at the example of limping implies that Socrates is entitled to conclude only that *pretended* failures are better than involuntary failures. This is unfair, for Socrates' 'induction' used a number of examples not involving pretence; in general Socrates argued that excellence in an activity is compatible with intentional, but not with unintentional, miscarriages.

CHAPTER 30

On 'coincidence' see also *Γ* 1, *Γ* 4. 1007ᵃ20–ᵇ18, and *E* 2.

1025ᵃ14. At *Topics* I 5. 102ᵇ4–7 Aristotle defines a coincidence as "what is neither a definition nor a peculiarity nor a genus, and yet holds good of the actual thing; and what admits of holding good of any one and the same thing and of not holding good of it". The words with which 'coincidence' is contrasted in the first part of this definition apply primarily to kinds of thing rather than to individuals; e.g. being recipient of grammatical knowledge (102ᵃ18–20) is a peculiarity of men, not of any one man. Similarly in the present chapter, the finding of treasure is a coincidence for a trench-digger because trench-diggers as a class do not usually find treasure when digging; it does not matter if the particular trench-digger in question has always or usually been successful. To that extent the expression 'is coincidentally . . .' works like 'is in most cases . . .' or 'is on average . . .'. But whereas the predicate 'has on average 2·34 children' cannot intelligibly be affirmed or denied of a particular parent,

Aristotle implies that 'coincidentally found treasure' can be intelligibly predicated of a particular trench-digger, not only of the class. The price of this extended usage is to make the context '. . . is coincidentally *F*' referentially opaque, in the sense that it may be a coincidence that some trench-digger found treasure but not that some archaeologist did, even though the trench-digger and the archaeologist are one and the same person. In Aristotle's own language, it was a coincidence for the trench-digger '*qua* trench-digger' or '*qua* himself' that he found treasure, but not *qua* archaeologist'. (This is not exactly Aristotle's way of putting the point: instead of '*x* is coincidentally *F qua x*' he would say simply '*x* is coincidentally *F*', and instead of '*y* is non-coincidentally *F qua y*' he would say simply '*y* is *F qua y*, or *qua* himself'; cf. ᵃ28–9.)

In this chapter coincidence is opposed to necessity (cf. *Topics* I 5. 102ᵇ6 "what admits of holding good . . . and of not holding good"), but in *E* 2 the contrast is also with what happens always: see notes on *E* 2. 1026ᵇ24. Another inconsistency calls for comment here: in the *Topics* passage it is implied that anything that holds good non-necessarily of its subject is a coincidence, but here and in *E* 2 coincidence is opposed also to what holds good for the most part (or as a rule, or usually). The reason for the extra restriction seems to be that Aristotle thought of a coincidence as something standing in need of explanation. Thus 'the doctor healed Coriscus' is self-explanatory, whereas 'the housebuilder healed Coriscus' needs extra information to explain why it is true, e.g. that the housebuilder in question is also a doctor (*E* 2. 1026ᵇ37–1027ᵃ2; this example clarifies the cryptic fourth sentence—that he healed holds good of the housebuilder, but not because the subject, time, or place are *as specified*). Aristotle was surely right in holding, by the time he came to write this chapter and *E* 2, that occurrences can often be explained by reference to usual, though non-constant, conjunctions: doctors do not always heal their patients, yet a man's being a doctor explains his success with Coriscus' illness. But he was wrong in holding that occurrences can always be explained by, and never without, such usual or constant conjunctions—which are certainly not sufficient (e.g. sufferers from muscular dystrophy usually die before thirty, but this victim died at 22 through falling out of an aeroplane) and probably not necessary (e.g. victims of rudeness do not usually commit murder, but the reason why this man murdered was that he had been rudely addressed). Aristotle may have confused explanation or giving the 'ratio essendi' with confirmation or giving the 'ratio cognoscendi'. It is possibly the case that, for every *x*, the truth of '*Fx*' is some *reason for thinking that Gx* if and only if *F*s are at least usually *G*; but not the case that, for every *x*, the truth of '*Fx*' is the *reason why Gx* either if or only if *F*s are at least usually *G*.

When Aristotle says (ᵃ24–5) that "there is no definite cause of the coincidental, but a chance one, and that is indefinite" he does not mean

that it is impossible to give a reason for a coincidental occurrence, but only that in the statement of the coincidence the reason is left "indefinite", i.e. not specified; cf. *E* 2. 1027ᵃ5–8. The example of the sailor who visited Aegina is somewhat puzzling. Visits to Aegina may be divided between the intentional and the unintentional; but that division does not correspond to one between the usual and the unusual, or between the self-explanatory and the non-self-explanatory. Perhaps Aristotle means that among landfalls in general the intentional are more usual than the unintentional, but even that might be false of landfalls on some barren island. Nor would an intentional visit explain itself, although the fact that it was intentional might be held to explain it to the extent of meeting the question 'why did he land there?' with the partial answer 'because he wanted, or meant, to'. Aristotle's point in the last sentence is that this unintentional landfall is usual, or self-explanatory, only under another description ("*qua* another thing"), viz. 'he was prevented by a storm from reaching his destination'.

1025ᵃ30. In what sense does the possession of two right angles (i.e. of angles having that sum) hold good of a triangle "in its own right"? Of the senses of that expression listed in Δ 18 the first two (1022ᵃ24, 27) are ruled out by the qualification "without being in its substance". The third (1022ᵃ29, 'as primary recipient') does not always demand a new sense of 'coincidence', for many primary recipients of *F*ness are coincidentally *F* in the first sense—e.g. surfaces are coincidentally pale because neither always nor usually pale. The fourth (1022ᵃ32, 'self-evidently') fits well, since what is self-explanatory cannot be coincidental in Aristotle's first sense of 'coincidental' and would have to be accommodated under a new sense. And the fifth (1022ᵃ35, see note), if indeed it can be extracted from the corrupt text of Δ 18, is tailor-made for Aristotle's example here.

In any case the new sense of 'coincidental' which the example demands is 'non-essential'. Although this new sense applies, as Aristotle's example shows, in some cases where the first sense does not, it also applies in every case where the first does. It is odd that Aristotle does not make this clear, and that he gives so little space to the new sense, which is prominent in his own use of the word.

"Elsewhere": for references see Bonitz, *Index Aristotelicus* 713ᵇ43–714ᵃ3. Among the Aristotelian senses of 'coincidental' not mentioned in this chapter the most important is 'in a derivative sense'; see *Posterior Analytics* I 4. 73ᵇ4–5 and, for possible examples of its use, *Categories* 6. 5ᵃ39, Δ 7. 1017ᵃ7–22, Δ 13. 1020ᵃ26–32.

METAPHYSICS BOOK EPSILON

CHAPTER 1

This chapter has always given difficulty to Aristotle's readers. Like Γ 1, it seeks to define the scope of metaphysics, the "primary discipline" of 1026ª15–16 and the "primary [or first] philosophy" of 1026ª24; but it contains two at first sight incompatible definitions, one of which makes metaphysics the non-particular (1025ᵇ7–10) study of all things-that-are (metaphysica generalis), while the other restricts it to the "most estimable genus" (1026ª21, metaphysica specialis). The last paragraph of the chapter attempts to reconcile these two conflicting conceptions.

1025ᵇ3. In the notes on Γ 1 will be found comments on "origins and causes", "*qua* thing-that-is", "discipline" and "a particular genus". The disciplines which are not "thinking, or thought-partaking" are presumably the humbler practical skills like knitting. Aristotle asserts that even more exalted special sciences do not attempt to say either (A) what their subject-matter is or (B) whether it is, i.e. exists.

(A) He does not mean to deny that e.g. zoologists know and indicate that their subject studies animals, but only to deny that they indicate what animals are, i.e. define them. Yet this is strange, for it seems neither impossible that a zoologist should "produce a statement of" what animals are, nor particularly appropriate that a metaphysician should do it for him (there is nothing of the sort in Aristotle's *Metaphysics*). "There is no demonstration of substance" is ambiguous. (1) Aristotle may mean that scientists' attempts to demonstrate definitions are *unsuccessful*, because they rely on "induction" which achieves only "some other"—inadequate—"manner of indicating it". Induction, in Aristotle, is the citation of observed instances either to establish or more commonly just to illustrate (*Posterior Analytics* I 1. 71ª9–10) and draw attention to a general truth. In other places he contrasts this method with syllogism (e.g. *Prior Analytics* I 25. 42ª3–4) and with demonstration (e.g. *Posterior Analytics* I 18. 81ª 40–ᵇ1). We may agree that definitions cannot be established by induction, even if other truths can be, but three problems remain: (i) can *any* method demonstrate a definition (see *Posterior Analytics* II 3. 90ᵇ24–5, "the principles of demonstrations are definitions, and of them we have already shown that there are no demonstrations")? (ii) If it can, why should not zoologists and others adopt it? and (iii) why should metaphysicians undertake the task? (2) Alternatively we may take Aristotle to mean that demonstration of definitions is *impossible* and needs to be replaced by "some other manner". So much is made "obvious" by the scientists' actual methods; yet their preliminary induction,

which indicates their subject-matter by perception or renders credible some hypothesis as to what it is, is not the "manner" needed: it cannot, even non-demonstratively, "produce any statement of what the genus is". This solves (i) but still fails to explain why scientists cannot, and metaphysicians should, give definitions. Parts of Aristotle's *Metaphysics* do exhibit a non-demonstrative method of arriving at definitions, but not definitions of the subject-matter of the special sciences. Aristotle needs the distinction made at *Posterior Analytics* I 9, 10 between common and special principles. (3) *K* 7. 1064ᵃ8–10 glosses "That is why it is also plain from such an induction [sc. from this review of the special sciences] that there is no demonstration of substance and of what a thing is". Whether or not this gives Aristotle's general meaning, it certainly misunderstands, or changes, the force of "from such an induction".

(B) In saying that "the same thinking will indicate what a thing is and whether it is", Aristotle does not mean that these are the same question (see *Posterior Analytics* I 1. 71ᵃ11–17 and II 7. 92ᵇ4–11), but that the answers to both questions are principles (cf. *Posterior Analytics* I 10. 76ᵃ 31–6, where it is inferred that neither kind can be "shown").

1025ᵇ18. The division of "thinking" and disciplines into theoretical, practical, and productive recurs at *Topics* VI 6. 145ᵃ15. Theoretical questions are of the form 'is this the case?' practical questions of the form 'should this be done, or how should this be done?' and productive questions of the form 'how should this be made?' Practical knowledge is not, for Aristotle, the same as useful knowledge; whereas we might say nowadays that knowledge of French is more practical than knowledge of Latin, and of French history than Roman history, in Aristotle's usage both of the first two are practical, both of the last two theoretical. Furthermore, his theoretical statements include the particular and descriptive as well as explanatory generalizations. The cognate verb '*theorein*' is rendered 'study' in this translation. Ross, in his book *Aristotle* (p. 62), seems to interpret the threefold scheme differently:

> Aristotle's classification of the sciences . . . divides them into the theoretical, which aim at knowledge for its own sake, the practical, which aim at knowledge as a guide to conduct, and the productive, which aim at knowledge to be used in making something useful or beautiful.

These words imply that the same item of knowledge, e.g. how the Polish border ran in 1740, could be theoretical for one man (the academic historian), practical for another (the diplomat who wishes to avoid old mistakes), and productive for a third (the maker of a historical atlas). On the other interpretation that item of knowledge is theoretical however it is used, and even practical and productive knowledge may be pursued for their own sakes, in the sense that one may e.g. decide what to do

merely in order to do it (but not merely in order to know what to do, see
A 2. 982^b27–8, *a* 1. 993^b20–1).

Aristotle argues that (*a*) physics studies things "in which the origin of
change and of keeping-the-same is in themselves" (i.e. self-changing
things; for the double use of "in" cf. *Δ* 4. 1014^b18–20 and note); (*b*) acts
and products have their origins in the doer and the producer; (*c*)
therefore physics does not deal with acts and products; (*d*) therefore
physics is theoretical. The argument is weak, because there is nothing
to stop a discipline which deals with self-changing substances dealing
eo ipso with the acts and products of those substances. Aristotle has not
demonstrated the theoretical status of e.g. anthropology, which studies
human behaviour but is not practical—on the first interpretation,
because it answers questions of the form 'what is the case?' on the second
because it need not be studied as a guide to conduct. The "since" clause
in ^b18–20 does not support Aristotle's claim that physics is theoretical,
but perhaps is meant to explain why the question is raised.

"Substance as in a formula": i.e. form, for, according to Aristotle, the
formula saying what a particular thing is can specify only of what *sort*
the thing is and cannot mention the matter which individuates the thing
from others of the same sort (cf. *Δ* 6. 1016^b32–3). There are thus two
kinds of substance: "one is the form" (*Z* 11. 1037^a29) or formula (*Z*
15. 1039^b20; cf. *Δ* 2. 1013^a26–7 for the lax identification of these two);
the other is the concrete thing, "formula taken with matter" (*Z* 15.
1039^b21–2). "Yet not separable substance" is difficult. In one sense
(employed in the paragraph beginning 1026^a6) no forms, but only
concrete things, are separable, viz. separately identifiable. A thing's
form is often, however, "separable in respect of formula", *Physics* II
1. 193^b4–5, i.e. a definition will mention it alone. The thesis is, then, that
although physics deals with forms or sorts of things as revealed in defini-
tions (*Z* 11. 1037^a16–17), there is a way—explained in the next para-
graph—in which matter usually also features in those definitions. (An
alternative reading, 'only as not separable', is adopted by Ross, giving
much the same sense. The Greek is awkward in either case.)

1025^b28. Although definitions cannot mention individuating matter,
they can "include matter" in a different way. The definition of a nose
or an animal will, if complete, specify the *kind* of matter which the form
must inform: the nose, for instance, must amongst other things be made
of flesh. The same is true of "the snub" because only noses are snub.
When Aristotle says that, by contrast, "concavity is independent of
perceptible matter" it is unclear whether he means (1) concave objects
do not have to be of any particular kind of matter, (2) concave objects do
not have to be material at all, since they may be geometrical figures (cf.
Z 10. 1036^a3–5), (3) the property concavity is not material (*De Generatione*

et Corruptione I 4. 320ᵃ2–5). The last would require "the snub" to be understood in the sense 'snubness', but since snubness is not *made of* flesh, the way in which snubness contains matter in its definition is quite different from the way in which noses, flesh, or animals do (and concavity does not). From confusion of these two ways Aristotle elsewhere developed an argument that the snub cannot be defined at all, since, if it were, its definition would be 'concave nose', and 'snub nose' would accordingly have to mean 'concave nose nose' (*Z* 5. 1030ᵇ29–1031ᵃ1). In *De Sophisticis Elenchis* (31. 182ᵃ4–6) he came to see that this argument is wrong; 'snub' means, not 'concave nose' but '(having) concavity of the nose', so that 'snub nose' means 'nose having concavity of the nose' which is "not in the least absurd".

Aristotle concludes that "the manner in which we need to investigate and define what a thing is in the case of naturally existing things is plain". It is not, however, plain whether all naturally existing things need, as noses do, definitions that mention a particular kind of matter, or merely, as perhaps does the concave, definitions that make them out to be changeable and so material (cf. *Z* 11. 1036ᵇ3–7).

1026ᵃ5. See *De Anima* I 1. 403ᵃ16–25 and III 4. 429ᵃ24–7.

1026ᵃ6. The first two paragraphs of the chapter appeared to argue for a difference between physics and metaphysics on the ground that physics deals with a genus or part of what-is. Yet now the search is for *another* part of what-is to be the subject-matter of metaphysics. Two solutions seem possible: (1) that the chapter is a clumsy recension of material composed at different periods in Aristotle's life, and reflects a change in his conception of metaphysics; or (2) that he was aware that the argument implied in 1025ᵇ18–19 is inadequate and needs replacing if, as 1026ᵃ23–32 will contend, the same discipline can have both a part and the whole of what-is for its province (see notes on 1026ᵃ23)—hence, that this paragraph should be read as saying that metaphysics includes, but is not confined to, the study of the changeless and separable (this was the solution of Natorp, who stressed the "also" in ᵃ16—where others have more awkwardly translated 'deal with things both separable and changeless'; in addition Natorp interpreted ᵃ10–11 'it falls to a theoretical discipline to ascertain whether there is anything . . .', and excised the later references to theology, the former a not impossible proposal, the latter, as Ross says, "violent").

Some mathematics studies its objects "*qua* separable"; that is, although numbers and lines and the like cannot be *detached* from changeable things (and so are not substances), they are *abstracted* by the mathematician (*Physics* II 2. 193ᵇ33–4, "they are separable from change in thought"). Aristotle does not here commit himself on the question whether the objects of mathematics are actually separable, although he contends

at ᵃ14–15 that those studied by "certain parts of mathematics" are not (does he mean, are not even abstracted, in contrast with "some mathematics"?). Might not metaphysics, then, be identified with any remaining part of mathematics which does study changeless and separable objects? Aristotle's answer, not given until *M* 2. 1076ᵇ11–3. 1078ᵃ9, is that there is no such further part: all mathematics deals with the perceptible *qua* lengths, planes, etc., and so with the changeless only by abstraction.

"If there is anything invariable and changeless and separable" (ᵃ10–11): a proof is offered at *Λ* 6. 1071ᵇ5–9: if all substances were destructible, everything would be destructible; but time and change are indestructible.

We are not told why the discipline whose objects are changeless and separable must be prior to all others. It is prior because its objects are prior; its objects are prior because (i) only concrete substances are separable (*Physics* I 2. 185ᵃ31), (ii) substances are prior to all other things (*Z* 1. 1028ᵃ29–ᵇ2), and (iii) changeless substances are prior to other substances (changers are prior to the things they change, therefore changeless changers to everything else, *Λ* 8. 1073ᵃ23–36).

At ᵃ13–14 the MSS. read "the study of nature deals with things that are *in*separable but not changeless". The surrounding uses of 'separable' require this to mean, not 'inseparable from matter', i.e. concrete, which would in any case demand "*and* not changeless", but 'not separately identifiable', i.e. non-concrete. Physics was described as the study of non-concrete forms at 1025ᵇ27–8 (cf. *Z* 11. 1037ᵃ16–17), but forms cannot be intended here, because they *are* changeless—hence the emendation 'separable', adopted in the translation.

The difference between mathematics and physics is also discussed at *Physics* II 2. 193ᵇ22–194ᵃ12, *De Anima* III 7. 431ᵇ12–16, *De Caelo* III 1. 299ᵃ11–17, *K* 3. 1061ᵃ28–ᵇ4.

1026ᵃ16. "Invariable" translates the adjective from 'always' and may therefore mean either 'everlasting' or 'always the same' (cf. *E* 2. 1027ᵃ19). The former makes Aristotle's remark absurd (although he did believe that *some* causes are everlasting, for otherwise there would be either a beginning of time, denied at *Physics* VIII 1. 251ᵇ19–23, or an infinite chain of causes, denied at *α* 2. 994ᵃ1–ᵇ27). The latter credits him with the opinion that causation is universalizable, perhaps in the sense that if *A* causes *E* and *B* does not there must be some further difference between them (for the connection between cause and universality cf. *A* 1. 981ᵃ 24–30 with *B* 6. 1003ᵃ14–15). The "divinities obvious to us" are the heavenly bodies (*Physics* II 4. 196ᵃ33–4), caused, i.e. moved, by the spheres (*Λ* 7. 1072ᵃ19–8. 1073ᵇ3).

1026ᵃ18. The claim that "the divine is a constituent" of all changeless substances, if of anything, explains why the study of them is called

theology (a description used only here and in the corresponding passage
at K 7. 1064ᵇ3), but is not itself anywhere justified by Aristotle. Theoreti-
cal disciplines are the most estimable because philosophy, sc. theoretical
philosophy, "alone exists for its own sake" (A 2. 982ᵇ27–8: we want to
know what to do in order to do it, but we want—or can want—to know
what is the case just in order to know it).

1026ᵃ23. Aristotle now attempts to resolve the conflict between the
conception of metaphysics as universal in subject-matter (on which see
notes on Γ 1) and the conception of it as confined to the study of change-
less substances. Can 'metaphysica generalis' be identified with 'meta-
physica specialis'? (i) The comparison with mathematics speaks only for
the existence of general metaphysics (more fully argued in Γ 2; on
universal mathematics see K 7. 1064ᵇ8–9, M 2 1077ᵃ9–10, ᵇ17–22,
Posterior Analytics I 5. 74ᵃ17–25, Heath, *Mathematics in Aristotle*, 222–4).
(ii) In his next sentence Aristotle pleads for the recognition of changeless
substances, but this, while telling against the identification of special
metaphysics with physics, does nothing to support the identification of
special with general metaphysics. (iii) All the work of reconciling these
two conceptions is left to the words "that [sc. the study of changeless
substances] is . . . universal in this way, because primary". Space permits
only a brief and dogmatic explication of these much-discussed words.
Metaphysics is primary, or first, philosophy because it studies changeless
substances, the primary existents; a study of primary existents will *also*
be universal, i.e. a study of all existents, if it aims to establish propositions
which reveal the ways in which other existents depend on, and "owe
their being called what they are" (Γ 2. 1003ᵇ16–17) to, primary existents.
Such propositions constitute what we may call an ontology. So far as
metaphysics is ontology, it is therefore both general and special. How-
ever, Aristotle makes his metaphysics seem wider than ontology in one
way, and it is wider in another. He makes it seem wider when he implies
that *any* truth about primary existents will be "universal" and so part of
metaphysics; yet such truths will contribute to ontology only when they
are investigated for the purpose of relating the primary existents to other
existents. The words "universal . . . because primary" ignore this re-
stricting condition, but the actual discussions of substance in ZH and of
changeless substances in Λ 4–10 may be thought to satisfy it. Aristotle's
metaphysics *is*, however, wider than ontology in another way, because it
embraces the discussion of concepts like unity, in Δ and I, and of the
principles of non-contradiction and excluded middle, in Γ 3–8. He seems
to have been aware that these topics do not give any special place to
substance (see Γ 2. 1004ᵇ6–9), let alone changeless substance. On one
interpretation (see notes on Γ 1), the phrase "that which is *qua* thing-that-

is" is meant to cover this non-ontological part of the subject; but if so, it covers the ontological part also, for both parts are "universal".

If there were no changeless substances, physics would be the primary discipline and therefore universal: i.e. ontology would be counted as a part of physics. Even as it is, Aristotle seems content to include within physics much that we would regard as philosophical.

CHAPTER 2

The division of senses of 'be' differs in two ways from that given in *Γ* 2. 1003ᵃ33–ᵇ10: the kinds of being distinguished in *Γ* 2 are here collected together under the heading "figures of predication" and separated from three further kinds, as in *Δ* 7; and the purpose of the new division is not, as in *Γ* 2, to raise a possible objection to the study of meta-physics but to delimit its scope. This purpose was shared by the latter part of *Γ* 2; but the conclusions of the two chapters are in conflict at one point, and they have the general difference that whereas *Γ* 2 argued for inclusions, *E* 2 demands exclusions.

1026ᵃ33. For comments on the fourfold division of senses of 'be' see notes on *Δ* 7; "was" in ᵃ34 may refer back to that chapter. The present passage adds to *Δ* 7 the point that all four ways are ways of saying that a thing is "baldly". This word can mean 'without qualification' (cf. 1027ᵃ5) or 'without addition' (*Topics* II 11. 115ᵇ29–35); the latter sense occurs elsewhere with 'be' as a way of distinguishing existence from copulative being (*Posterior Analytics* II 1. 89ᵇ33, "I mean whether it is or is not baldly, not whether [it is] pale or not"; cf. II 2. 90ᵃ3–4). That the word is meant to distinguish existence here has been doubted on two grounds. (i) Aristotle elsewhere asserts (*Z* 1. 1028ᵃ30–1) that only sub-stances can 'be' baldly. It is hard to see how this objection works, since that assertion is in any case contradicted in the present passage. The truth is that Aristotle had no settled opinion as to whether '*x* is' must be elliptical when *x* is a non-substance: see *Z* 4. 1030ᵃ32–ᵇ4, which first suggests that we assert being of non-substances "with an addition and [of substances?] with a subtraction", but then substitutes as "correct" the alternative theory adumbrated in *Γ* 2. 1003ᵃ33–ᵇ10 that the being of non-substances is not elliptical but derivative. (ii) It has also been objected that Aristotle's second division of being, being as truth, is not a type of existence. But in *Δ* 29 Aristotle treats falsehood as a property not of propositions or sentences but of "actual things", sc. states of affairs, and infers that a false state of affairs is one that 'is not'. This doctrine does in effect propose that truth and falsehood are forms of existence and

non-existence. We may conclude that even if there are places in which Aristotle restricts 'being baldly' to substances, he does not do so in E 2; and that in E 2 'is baldly' means 'exists'.

1026ᵇ2. This paragraph is discussed under six headings: (A) the example of housebuilding; (B) the conflict between ᵇ10–24 and Γ 2; (C) the example of the triangle; (D1), (D2) the sophistic puzzles; (E) the coincidental and what is not.

(A) Aristotle can hardly mean to deny either that housebuilders can produce pleasing houses, or that they can do so deliberately; his contention seems to be that such outcomes and such aims are not attributable to their owners' knowledge or skill *as* housebuilders. We may agree that the 'discipline' of housebuilding is simply the ability to build houses, not houses of any particular kind. But (i) Aristotle's choice of 'pleasing' and 'beneficial' is unfortunate, for although these are examples of coincidental predicates of a house, so that it is *possible* to build houses without building pleasing or beneficial ones, we might still be inclined to say that a man does not have the *knowledge* how to build houses until he knows how to make them pleasing or beneficial or at any rate in some way good. (ii) A house may have other coincidental properties, e.g. curvature, the ability to produce which is a part, although not a necessary part, of the housebuilder's skill. The construction of, for example, bow windows is not "neglected" in the discipline of housebuilding. (iii) Other coincidental properties of houses, such as their location, although not studied in the art of housebuilding, come within the scope of different disciplines— those of the landscape artist and the zoning officer. Thus Aristotle entirely fails to show that *no* study deals with what is coincidental to a house.

(B) The example of geometry is no more convincing; in addition it contradicts what Aristotle says elsewhere. The question reserved from treatment by geometers, "whether a triangle and a triangle possessing two right angles (i.e. angles having that sum) are different" is one whose answer turns on the conditions of application of the quite general concept of difference. In this respect it is like the question mentioned at Γ 2. 1004ᵇ2–3 "whether Socrates and Socrates sitting down are the same" which, because its answer demands examination of the general concept of sameness, is there included within the sphere of metaphysics. Yet according to the present passage it would be excluded not only from geometry but by implication from metaphysics and every other discipline. This contrast is heightened in the lines that follow. Γ 2. 1004ᵇ22–3 asserted that "sophistic . . . ranges over the same genus as philosophy" sc. that which is, but at 1026ᵇ14–15 we are told that "in a way" sophistic deals with what is not; and the sophistical questions listed at ᵇ16–21 are even closer to those included within metaphysics at Γ 2. 1004ᵇ2–4. The

thought which finds no connection between sophistic and metaphysics seems, like much of *E*, more primitive and muddled than that of *Γ* 2.

(C) Although Aristotle does not tell us what sense of 'coincidental' he is employing, we are presumably to understand him with reference to the definition in the next paragraph ("this way": sc. in contrast to *Δ* 30. 1025^{a}30). Yet on that definition it turns out—*pace* Ross—that being the same as a triangle with two right angles is not a coincidental property *of a triangle*; for all triangles are like that. We have to apply the definition in another way; and the alleged fact which Aristotle seems to have in mind is that the predicates 'triangle' and 'triangle with two right angles', although equivalent, are not freely substitutable for one another; since the occurrence of 'triangle' *within* the longer phrase cannot be replaced *by* the longer phrase without repetition, and such repetition, or "babbling", seemed to him nonsensical (cf. *De Sophisticis Elenchis*, chapters 13, which states, and 31, which solves, similar problems concerned with babbling—but not precisely this one). Aristotle takes this alleged restriction on substituting the one expression for the other as a reason for saying that the things designated by the expressions are not the same. But since the substitution is not always barred, we can say that the things are sometimes the same, though sometimes different—hence coincidentally the same and coincidentally different.

(D1) It is rather simpler to explain what is coincidental about the difference between "artistic and literate, and artistic Coriscus and Coriscus". Whereas the substitution of 'triangle having two right angles' for 'triangle' will sometimes, according to Aristotle's doctrine of babbling, produce nonsense, the substitution of 'artistic' for 'literate' will sometimes produce falsehood. In the example invented by Alexander and repeated by Ross, it is assumed that Socrates is both literate and artistic, Aristarchus literate but not artistic. Then the artistic is the same as the literate—i.e. the one expression can be substituted for the other— in reference to Socrates but not to Aristarchus. The two are sometimes the same, sometimes different, hence coincidentally the same and different. 'Artistic Coriscus' and 'Coriscus' may fail of substitutability in either of the two preceding ways. If Coriscus changes from inartistic to artistic or vice versa, 'artistic Coriscus' will sometimes be and sometimes not be a correct variant for 'Coriscus'. Even if he does not change, 'artistic Coriscus' cannot without babbling be substituted for 'Coriscus' in the phrase 'artistic Coriscus' itself.

(D2) The argument referred to in ^{b}18–20 must have sought to prove   an absurd implication by means of the principle that what "is but [was] not always, has come to be". Ross's speculative but elegant reconstruction may be paraphrased thus:

(1)   Someone, being artistic, has come to be literate;

(2)   so, being artistic, he is literate;

(3)   so, being literate, he is artistic;
(4)   but it was not always the case that, being literate, he was artistic;
(5)   so, being literate, he has come to be artistic.

Ross does not explain so clearly how Aristotle would have us solve the puzzle. The actual fallacy is of a type recognized in *De Sophisticis Elenchis* 4. 166ᵃ22–32 under the title 'composition', i.e. bracketing: line (5) ought to read 'he has come to be, being literate, artistic'. But in *De Sophisticis Elenchis* Aristotle rightly distinguished that type from the puzzles about reference which he put under the heading 'coincidence' (ib., chapters 5 and 24). Here, it seems, his eagerness to display the vagaries of sophistic arguments has led him away from the thesis which those arguments were supposed to illustrate.

(E) Aristotle's assimilation of his own view that sophistic deals with the coincidental to Plato's that it deals with what is not (i.e. that its propositions are false, *Sophist* 254 a, cf. *N* 2. 1089ᵃ20–1) can be explained as follows: if the sophist maintains, without qualification, that e.g. the literate and the artistic are the same (or are different), what he maintains is both false and sometimes, i.e. coincidentally, true. "What is coincidental is close to what is not" in the sense that being the case just sometimes is a way of not—sc. not always—being the case. The point turns on the fact that a sophist who said that *p* would be taken, in the absence of explicit qualification, to mean that *p* always and in all cases. "Like a mere name" emends the MSS. reading which, if it means anything, means 'the coincidental exists as it were in name only'. The reference to names is not pursued, and may be due to corruption. The emendation adopted can hardly, as Ross supposes, convey the sense that puzzles about coincidences depend upon ambiguities of language, a suggestion which is in any case not borne out by Aristotle's examples; the meaning is either '*x* is *F* coincidentally' is like '*x* is *F* in name and not in fact' or 'coincidental properties attach no more closely than names'. "More than anything": the Greek could mean 'more than any-one's'.

For the contention that things that are coincidentally are never in process of coming to be or of destruction see notes on *E* 3.

1026ᵇ24. The definition which Aristotle now gives of ·'coincidental' ('non-regular') is more fully discussed in the notes on *Δ* 30. 1025ᵃ14, a chapter in which it appears alongside another definition ('non-essential', 1025ᵃ30). It was in the *latter* of these senses that Aristotle distinguished coincidental being at the beginning of *E* 2; we may therefore complain at the revelation that his case against a science of coincidental being assumes the *former* sense, for if there is no science of the non-regular it does not follow that there is no science of the non-essential.

When, in this and the following chapter, he says that something 'is'

coincidentally, or always, or of necessity, or for the most part, he should be understood to speak of the manner of existence of some state of affairs.

The "cause" in ^{b}26 and the "origin and cause" in ^{b}31 are the *proof* that coincidental states of affairs occur: viz. if it is only in most cases that *p*, it must be true in some but less than most cases that not-*p*. The proof is repeated at 1027^{a}8–13 and 1027^{a}15–17. (In 1027^{a}13–15, however, "cause" seems to mean 'explanation'.)

For the conjunction of 'always' with 'of necessity' see *De Generatione et Corruptione* II 11. 337^{b}35–338^{a}2; ^{b}32 will define 'coincidence' in terms of 'always', but *Δ* 30 used 'of necessity'. By this equation Aristotle seems to leave no room for contingent regularities, such as might be expressed in the belief that honey-water always benefits the bilious; the omission doubtless helped his assimilation of the two senses in which 'coincidental' means 'non-essential' and 'non-regular'. The temporal element in 'always' should not be stressed; Aristotle quite often uses the word to mean 'in all cases' (as in 'flowers always die in the end', cf. *Δ* 2. 1013^{b}33, *Δ* 6. 1016^{b}35, but contrast *Posterior Analytics* I 4. 73^{a}28–34). On senses of 'necessary' see *Δ* 5.

Among Aristotle's examples of the coincidental, the last two do not obviously illustrate his definition. Are we to infer that a housebuilder heals his patients coincidentally even if housebuilders do so for the most part (it is not relevant to ask whether the *particular* housebuilder does so for the most part or not; see notes on *Δ* 30. 1025^{a}14), or would their having such regular success be enough to make healing "characteristic" of housebuilders? Aristotle seems to waver between a criterion based purely on frequencies and one based on considerations as to what it is to *be* a doctor and a housebuilder; the latter would allow us to say *a priori* that the housebuilder's success was a coincidence, arguing from the conceptual truth that nobody heals *qua* housebuilder. Aristotle makes his healing housebuilder a doctor also; but it cannot be a truth, either conceptual or empirical, that all who heal are doctors. When he says at ^{a}5 that the cook produces health "in a way", he means 'with a qualification', viz. coincidentally or (perhaps) *qua* dietician.

1027^{a}5. Both Ross and Jaeger emend, but the text adopted, which follows two good MSS., seems to make tolerable sense. "For" introduces a division of coincidental products: some of them are like health, which is sometimes coincidentally produced by cookery, sometimes non-coincidentally produced by medical art; others are like pleasantness (1026^{b}7), never produced except coincidentally.

1027^{a}13. The thought seems to be: in looking for the explanation of a coincidental state of affairs such as a stormy dog-day or a restorative cook, we must examine that class of things, dog-days or men, which are

capable of being stormy or restorative although they are not so usually. Aristotle does not mean that a coincidental state of affairs is a material thing; its "matter" is the kind of thing it is—the class determined by the properties which it must retain through every change, as the dog-day must remain a dog-day even if ceasing to be stormy; cf. *Δ* 28. 1024ᵇ8. For the idea that matter can actually be an explanation or "cause" see *Δ* 2. 1013ᵇ18.

1027ᵃ15. This reads like a marginal gloss on ᵃ8–13, the argument of which it repeats. A negative answer to the "original question" (literally 'origin') provides the premiss for deducing that coincidental states of affairs occur.

1027ᵃ17. "Invariable", i.e. invariably connected; Gewirth, *Philosophical Review* 1953, 585 n. 20. The forward reference is apparently to the proof of changeless substances in *Λ* 6–8.

1027ᵃ19. This paragraph gives a new and better—but cryptic— defence of the thesis already argued for at 1026ᵇ2–24. The argument is this. If the proposition 'fever-patients benefit from honey-water' is to contribute to the "discipline" of fevers, and if, in particular, it is to be used in teaching somebody how to cure fever-patients or when to expect cures, it must be understood as a proposition about (*a*) all or (*b*) most cases. As an example of a proposition not meeting these conditions Aristotle takes "the exception" to the latter, viz. (*c*) 'in just a few cases fever-patients do not benefit from honey-water'. The example is unfortunate, for (as Aristotle knew) knowledge of (*b*) implies knowledge of (*c*). But his general point is that propositions of the form 'in some cases (*at least* a few cases) it is true that *p*' fail, by reason of indefiniteness, to be contributions to science. The exception can be "defined" or specified by putting 'at new moon' in place of 'in some cases'; but "that which is at new moon is also either always or for the most part"—by which Aristotle means not that there are no irregularities at new moon, nor that the unqualified proposition 'at new moon fever-patients do not benefit from honey-water' necessarily implies 'in all or most cases', but that the unqualified proposition must be *understood* with that implication *if* it is to be used in learning or teaching. "The exception . . . cannot be stated", sc. without abandoning indefiniteness.

This argument calls for four comments. (A) Its acceptability depends on construing "discipline" in a narrower sense than 'knowledge'. It is possible to know both particular and indefinite truths, as that honey-water *has* benefited *this* patient and that it *sometimes* benefits *some* patients. At *A* 1. 981ᵃ7–29 Aristotle describes the former kind of knowledge as "experience"; but he concedes that it is a form of knowledge when he adds (using the ordinary Greek verb for 'know', '*eidenai*') "men of

experience know *that*, but do not know *why*". Knowledge in the sense of discipline or science (*'epistêmê'*), on the other hand, has to be knowledge of causes (*E* I. 1025^{b}5–7) and of universals (sc. universal truths, *B* 6. 1003^{a}14–15).

(B) The requirement that the truths of a science or discipline be universal is normally, as here, relaxed by Aristotle, who saw that partial generalizations of the form 'it is for the most part the case that *p*' (cf. *Posterior Analytics* I 30. 87^{b}19–22) can be both explanatory and predictive.

(C) Truths of the form 'the *F*'s being *G* is a coincidental thing-that-is', i.e. 'it is just sometimes the case than an *F* is *G*', do not feature as the established propositions of any discipline, but that does not mean that they are not *studied* by any discipline. For although the student will not learn from the proposition 'it is sometimes the case that *p*', he will learn by studying the question which that proposition raises, viz. 'when is it the case that *p*?' In the paragraph beginning at 1026^{b}2 Aristotle overlooked this distinction. It is a coincidence that a house is pleasing, because houses are so only sometimes; it follows that the housebuilder's art will not teach him *that* houses are sometimes pleasing; but it will teach him *when* they are, i.e. under what producible conditions. Similarly, it is a coincidence that the artistic and the literate are the same, because these expressions are only sometimes interchangeable *salva veritate*; but what makes the sophist unscholarly is not his attention to this fact but his inattention to the further question 'under what conditions are they (always) interchangeable?' The failure of sophistic to be a discipline is due not, as 1026^{b}2–24 claimed, to the nature of the sophist's problems, but to his not attempting—allegedly—to solve them.

(D) Commenting on 1027^{a}25–6 Ross writes that "it is perhaps the only place in which Aristotle implies the view that there is nothing which is objectively accidental". Aristotle makes two points: that the fact of honey-water's being only sometimes beneficial to fever-patients is compatible with there being certain conditions under which it is never (or rarely or always or usually) so; and that he who wishes to learn must seek to specify those conditions. Ross would add a third, that failure to specify them must be due to subjective causes—human obtuseness— never to their non-existence; but nothing in the passage requires us to attribute this extra point to Aristotle.

CHAPTER 3

The distinction between coming to be, or being destroyed, and being in process of coming to be, or of being destroyed, is part of a more general distinction between changes that are instantaneous and those that take time (both are different from exercises or activities that last for a time

but cannot stop without finishing; see Θ 6. 1048ᵇ18–36). Although this distinction admits of no intermediate degrees, its application is not always clear. Learning the alphabet is obviously a time-consuming change, finishing learning the alphabet an instantaneous one; but what of mastering the alphabet? Is a man born, and does he die, over a period or at an instant? Aristotle's applications of the distinction in E are two. At E 2. 1026ᵇ22–4 he says that the onset and cessation of a coincidental state of affairs must be instantaneous. This seems false. It is a coincidence, we are told (E 2. 1026ᵇ35–6), that a man is pale, yet he probably took time to become so. Aristotle should have restricted himself to the narrower claim, appropriate in the immediate context in E 2, that coincidental *identities* have an instantaneous onset; for although Coriscus can be in course of becoming pale it seems unnatural to say that he is in course of becoming the same as the pale Coriscus. Secondly, Aristotle now adds that origins and causes can come to be and cease to be instantaneously.

pp. 222–5   The purpose of E 3 is to prove this second contention, but its argument is very obscure. We may begin with a point of some certainty: Aristotle uses the notion of necessity in such a way that it makes sense to say of an individual state of affairs that it *becomes* necessary or "is not yet" necessary (ᵇ10–11). It follows that in *this* chapter 'necessary' is not always opposed to 'coincidental', and a state of affairs might be coincidentally necessary —i.e. sometimes or in some cases unavoidable; and when Aristotle accepts as a datum that not everything is necessary (ᵇ10–11), he probably means that

(*a*)   not everything is necessary all the time.

Next we must determine Aristotle's view about the connection between necessity and causation. In the second paragraph he assumes that causes precede their effects in time; thus if we trace the causal lineage of a finitely future state of affairs "we shall come to the present" (ᵇ1) or "to something that has come to be" (ᵇ3–4). In ᵇ5–10 he seems to accept that any future state of affairs whose causal lineage does in this way stretch back to the present or past is already necessary; at any rate, if everything is such, "everything that will be will be of necessity" (cf. *Rhetoric* III 17. 1418ᵃ5 "for what has come to be possesses necessity"). The following lines then concede that even a state of affairs which is "not yet" necessary, for instance the death of a man by disease, "runs as far as some origin". If this origin (say, the eating of a toadstool) is not to make the death by disease already necessary, it must, seemingly, be in the future. Since Aristotle adds that the origin runs "no further to anything else", it follows that the whole causal lineage of the death by disease is in the future, i.e. that that manner of death has *as yet* no cause. Thus what is not yet necessary has as yet no cause, and in general

(*b*)   what has a cause at any time is necessary at that time.

Aristotle goes on to say at ^{b}12–13 that the future 'origin' (the eating of the toadstool) is "the origin of whatever may chance", which appears to contradict (*b*) by asserting that the death by disease will still be 'chance', i.e. not necessary, *when* it gets its origin or cause. The contradiction is avoided if we take Aristotle to mean that the toadstool-eating will be the origin of what is *until then* a chance outcome. From (*a*) and (*b*) it follows that

(*c*)   some things at some times have no cause.

Moreover, the future origin of a sometime chance state of affairs must itself be uncaused at *all* times before its onset (otherwise it will not run "no further to anything else"); this is perhaps conveyed by ^{b}13–14 "and nothing else is the cause of its coming to be". Hence, by the assumption that causes must precede their effects, it follows that

(*d*)   some causes at no time have any cause.

We must now return to the first paragraph of the chapter. At ^{a}31–2 Aristotle hypothesizes that anything whose coming to be takes time "has some cause non-coincidentally". It seems on the whole easiest if we take this highly ambiguous phrase to mean

(*e*1)   anything whose coming to be takes time has a cause at all times

('non-coincidental' meaning 'necessary' in the sense 'always', not 'unavoidably'). (*e*1) will imply that the causal lineage of a house, for instance, goes back in time without limit. The merit of this interpretation is that (*d*) and (*e*1) immediately entail

(*f*)   there are some causes whose coming to be does not take time

which, with the further assumption that these causes are not eternal (cf. *E* 1. 1026^{a}16 and note), in turn entails that their coming to be is instantaneous, the thesis of the chapter. But the interpretation has its difficulties. First, the qualification "non-coincidentally" is redundant if the argument depends on (*d*), which says, in effect, that some causes have not even coincidental causes. If, on the other hand, we take Aristotle to have relied on (*c*) rather than (*d*), that would justify the conclusion that there are some *things* whose coming to be does not take time, but not some *causes*. The second difficulty is that it is unclear why Aristotle should have thought (*e*1) true.

   Alternatively, then, the ambiguous sentence at ^{a}31–2 might be taken to mean

(*e*2)   any *x* whose coming to be takes time has a cause of a sort which
          always (or necessarily) causes things of *x*'s sort.

or

(*e*3)   . . . which always causes things of *x*'s sort, or nothing.

One or other of these senses seems intended by Ross's paraphrase

"necessarily produces"; but the passages which Ross cites do not support the view that Aristotle believed either (e2) or (e3). Moreover, in order to make either of them fit into the argument as a whole, we should have to read the second paragraph as distinguishing necessitating from non-necessitating causes; whereas, as Ross admits, ª32–ᵇ10 are most naturally taken as committing Aristotle to the opinion that all causes necessitate, i.e. to (b). The chapter has not yet received a satisfactory interpretation. (Other relevant passages are De Interpretatione 9, K 8. 1065ª6–21, De Partibus Animalium I 1. 640ª1–9, De Generatione et Corruptione II 11. 337ª34–338ª4.)

At ᵇ5, "of necessity he will die or not die" is ambiguous. De Interpretatione 9, which examines the relation between necessity and the future in far greater detail, employs a similar phrase explicitly with the force 'necessarily (p or not-p')' (19ª30). But here the context demands '(necessarily p) or (necessarily not-p)': the present facts—compare the past facts in ᵇ6–10—necessitate a future outcome, but which outcome depends on which are the present facts. Although this is certainly Aristotle's meaning, it is more than he should have said, for even if the example shows that the man's eating something salty necessitates his death by violence, it is far from showing that his not eating it necessitates his not dying by violence.

1027ᵇ14. The "reduction" leads to an original cause which runs "no further to anything else". Aristotle's omission of formal causes suggests that he regards still-avoidable states of affairs as examples of coincidental beings, which have no form or essence in the full sense (Z 4). But the general connection between this chapter and the last is obscure.

CHAPTER 4

1027ᵇ17. Aristotle's claim that, taken together, a truth and a falsehood are "concerned . . . with the apportionment of a contradiction" seems to imply that if A and B are the members of a contradictory pair, one must be true and the other false—a thesis examined in detail in De Interpretatione 7–11 and there found to have at least one exception. Γ 7. 1011ᵇ26–7 indicates how the apportionment is made. The other half of Aristotle's claim about truth and falsehood, that they "are concerned with composition and division", is repeated at De Interpretatione 1. 16ª9–18 in the same words (translated by Ackrill 'combination and separation'); and there explained by distinguishing true and false thoughts (e.g. the thought or belief that Callias is pale) from thoughts "that are without composition and division" (e.g. the thought or conception of Callias). Here, however, it is not thoughts—or words—but

things (e.g. Callias and pallor) which are or are not compounded; cf. *Δ* 29. 1024ᵇ18–19.

The problem raised in the parenthesis is not how to distinguish

(*a*)   a thought of pallor succeeded by a thought of Callias

from

(*b*)   a thought of pale Callias,

but how to distinguish (*a*) from

(*c*)   the thought that Callias is pale.

Aristotle's mode of expression invites a confusion between (*b*) and (*c*) from which, perhaps, he was not himself free. (This sentence shows that the words rendered 'think' and 'conceive' in the present translation do not mark our distinction between belief and conception). Another confusing feature of the parenthesis is its use of 'together' (the Greek word is '*hama*', elsewhere in this translation rendered 'simultaneously') in contrast with 'separately,' which makes it seem as if one who thought two things separately would have to think them in succession. In fact, of course, by thinking separately Aristotle here means having a negative belief, e.g.

(*d*)   the thought that Callias is not pale,

which, like (*c*), contrasts with (*a*). Aristotle fails to make it clear that he has two contrasts on his hands, that between affirmative and negative beliefs and that between beliefs and conceptions. Even negative beliefs and statements "involve combination" (*Categories* 2. 1ᵃ16) in the sense that they connect thoughts and words in a more unifying way than do thought or spoken lists like 'man, pale' (cf. *Categories* 4. 2ᵃ8–10, 10. 13ᵇ10–11, *De Interpretatione* 4. 16ᵇ26–7, *Topics* I 4. 101ᵇ23–8); but they "are concerned with division" in the different sense that they declare the things signified by those thoughts and words to be disjoined. The difference between belief and conception is discussed in *De Anima* III chapters 2, 6, and 7.

1027ᵇ25. Aristotle's example shows why he says that falsehood and truth are "not in actual things". But are they "in thought"? *We* might agree that beliefs (and statements) are the primary recipients of the predicates 'true' and 'false', but in *Δ* 29 Aristotle firmly describes as falsehoods another kind of "actual thing", viz. states of affairs like Callias' being pale (a result which will follow if we take 'Callias' being pale' as equivalent to 'that Callias is pale' and construe the latter as subject of 'it is false that Callias is pale'). Nevertheless Aristotle offers one good reason for dismissing truths and falsehoods as less "fundamental" (contrast *Θ* 10. 1051ᵇ1) than substances, qualities, and the members of the other categories: Callias' being pale is a state of affairs which

connects, and his not being pale a state of affairs which divides, two simple items, Callias and pallor; the existence of the former is thus to be explained in terms of that of the latter, and truths and falsehoods "do not indicate the existence of any extra (sc. independent) nature of thing-that-is". "The cause of the other is a certain affection of thought": Aristotle does not mean that beliefs cause facts (see *Θ* 10. 1051ᵇ6–9) but that beliefs are the recipients (subject-matter) of truth. On simples see *Θ* 10.

1028ᵃ2. "That which is itself": i.e. that which is in its own right; cf. *Δ* 7. 1017ᵃ22. "*Qua* thing-that-is" should be taken as modifying the verb "investigate", not as a gloss on "itself"; see notes on *Γ* 1.

1028ᵃ4. The sentence would be more appropriate as an introduction to the following book *Z*, which in our MSS. begins with similar words. The reference is to *Δ* 7.

FURTHER COMMENTS (1992)

THE appearance of a second edition of this volume offers me an opportunity of commenting on some of the extensive literature about Aristotle's metaphysics that has been published in recent years, and of using that literature to draw together, and sometimes reassess, the views expressed in the Notes on issues that are particularly pervasive or contentious in books Γ, Δ, and E. In some places I shall quote from the Notes, in order to reaffirm what still seems to me importantly right or withdraw what seems importantly wrong, looking back from 1992 to 1971. In default of a completely new commentary—which in any case would have come better from another pen—I hope that new readers will find this re-treatment helpful. Numbers in square brackets refer to the Bibliography.

Γ 1, E 1: METAPHYSICS

What according to Aristotle is metaphysics? The question is ambiguous. It might mean, 'How does—or would—Aristotle characterize the inquiries gathered in the fourteen books which *we* know under the ancient but apparently non-Aristotelian title *Metaphysics*?' Or it might mean to ask about Aristotle's characterization of what *he* calls the "primary [or: first] philosophy" (1026^a24), the "primary discipline" (*epistēmē*, 1026^a15–16, 29) or the "primary science" (*sophia*, 1005^b1). Perhaps the two questions are the same: if the collection of our fourteen books into a single treatise was Aristotle's own work, or was the work of editors following his wishes, or at least would have been approved by him, perhaps its rationale is that all these books deal with First Philosophy. But we have no statement of that view, only evidence for it. The evidence is contained chiefly within the group of books translated in the present volume, and is as follows. (i) E 1. 1026^a18–29 claims that First Philosophy is Theology, that is, the study of changeless substances, of which "the divine is a constituent". (ii) Book Γ begins by arguing for the existence of "a discipline which studies that which is *qua* thing-that-is [*to on hēi on*, traditionally 'being *qua* being'] and those things that hold good of this in its own right" (1003^a21–2). (iii) The latter part of book Γ, which investigates the principles of non-contradiction and excluded middle, might be expected to be an exercise in this discipline, and is so represented in the Note on 1005^b8. (iv) The final half-sentence of E 1 makes Theology embrace the discipline whose existence was defended in Γ: "and it would fall to [the study of changeless substance] to study that which is *qua* thing-that-is, both what it is and the things that hold good of it *qua* thing-that-is" (1026^a31–2).

This evidence bears on two questions: would Aristotle wish to bring all the fourteen books under his conception of Theology; and if so, would he be right to do so? On both questions the final half-sentence of E 1 is crucial. It could be an interpolation, introduced by an editor in order to make a connnexion not elsewhere explicit in Aristotle's text. If so, the editor was intelligent; for Aristotle's immediately preceding remark is that Theology is "universal in this way, because primary" (1026^{a}30–1, cf. Γ 3. 1005^{a}35), and the "discipline" of Γ had been suspect, and so in need of defence, precisely because of its claim to a certain sort of universality. Assuming then that the half-sentence is not an interpolation, Aristotle sees the science described in book Γ as falling under Theology. How much matter from the *Metaphysics* comes into Theology under this rubric? (Very little comes in without it, perhaps only Λ 6–10 on 'unmoved movers', i.e. changeless changers.) The introductory Note on p. 122 argues that Δ earns its admission to the "discipline" defined in Γ 1. A similar case could be made, I think, for most or all of the others of our fourteen books, and the Notes presume something like this case by denominating the "discipline" metaphysics.

Continuing the assumption, is Aristotle right to assert the half-sentence—to assert, that is, that Theology, the seemingly departmental study of changeless substances, embraces the universal study envisaged by the opening sentence of Γ 1, of "that which is *qua* thing-that-is"? At this point the curious '*qua*'-phrase needs interpretation. One defence of Aristotle ([34]) begins by interpreting it in a way—a Kantian way— which makes the envisaged study departmental too: that which is *qua* thing-that-is, 'being *qua* being', is a chunk or genus of what there is, a chunk which E 1 will later invite us to identify with changeless substances. The defence then proceeds by arguing that a kind of universality is conferred on the study of that genus by the relationship of its members to everything else ([34]), or of the study of it to every other study ([7], [49]). The author of *Metaphysics K*, who may or may not be Aristotle himself, seems to join this party when in his epitome of E 1 he paraphrases the question "whether the primary philosophy really is universal" (1026^{a}23–4) in the words "whether one really should count the discipline concerned with [literally: of] that which is *qua* thing-that-is as universal or not" (K 7. 1064^{b}7–8). Against these proposals there are now powerful objections in Thorp [51], who rejects their justifications of 'universal' (pp. 113–21), and Stevenson [46] (see also the Notes on pp. 77–8), who shows that they misunderstand the syntax of the '*qua*'-phrase, which restricts the kind of study, not the subject studied. A different suggestion, close to [44] and [50], is supported in the Note on 1026^{a}23: that the primary substances, whatever they are—changeless in Aristotle's opinion, but the same would be true if they were the changeable things of 'nature', so that "the discipline concerned with nature", i.e. physics,

"would be primary", (1026ᵃ28–9)—these primary substances *explain* everything, and accordingly understanding (*epistēmē*) of them delivers understanding of everything. Such a project of explaining everything by reference to basic existents is what the Note on 1026ᵃ23 calls ontology.

The word 'ontology' has other senses as well (see [49]); but even in the Note's sense it contains an indeterminacy, for understanding and explanation of a thing can be of *what* the thing is, its nature, or of *why* it exists, its cause. Both of these come under Aristotle's conception, broader than ours, of cause; and when he says at 1003ᵇ16–17 that the "primary [object]" of a discipline is "that on which the others depend and to which they owe their being [literally: that because of which they are] called [what they are]", he appears to leave it open which of these two kinds of explanation is to be derived from the study of primary substances.

The suggestion is, then, that Aristotle identifies Theology with the "discipline" of *Γ* 1 by identifying each of them with ontology, in the indeterminate sense of 'understanding everything by reference to basic existents'. If this is Aristotle's manœuvre, however, it can be criticized in the way suggested in the Note, on the ground that neither identification is justified. On the one hand Theology will embrace some questions—as in *Λ* 6–10—which are not ontological. On the other hand much of Aristotle's 'universal' inquiry in the *Metaphysics*, for example his examination of the logical principles in *Γ* 3–8, and the conceptual analysis of *Δ* and *I* if those books count under *Γ*'s rubric, is not ontological either.

Γ 4: CONTRADICTION

As part of the study envisaged in *Γ* 1 "we also have to find the first causes of that which is *qua* thing-that-is" (1003ᵃ31–2). These first causes are or include *archai*, which the Translation gives sometimes as 'origins', sometimes as 'principles'. The firmest principle of all is: "for the same thing to hold good and not to hold good simultaneously of the same thing and in the same respect is impossible . . ." (1005ᵇ19–22). The Notes call this the principle of non-contradiction (PNC); Aristotle's own word '*antiphasis*', meaning 'contradictory pair', is used in the formulation at 1011ᵇ16. Aristotle argues that such a principle cannot be demonstrated (see [85] p. 21 n. 1); but it can be "demonstrated in the manner of a refutation" (1006ᵃ10–12) against an opponent who is willing to start discussion going. The method is to find something which shall be demanded, or 'begged', from the opponent as his initial contribution (not to ask the opponent to "choose the premiss", as the Notes say on p. 91). In all such dialectic it is a fault to beg what is "originally at issue" (traditionally translated 'begging the question'; but not all commentators

notice that begging the question is not the same as assuming what is at issue—Aristotle's *opponent* can assume what is at issue but cannot beg the question, for he begs nothing). In the peculiar circumstances of the permitted manner of demonstrating PNC the only safe way of avoiding that fault, Aristotle thinks, is to beg no more than that the opponent "signify something both to himself and to someone else" (1006^a21-2); so much can properly be begged, since without signifying there will be no saying or statement (*logos*, 1006^a22-3). From this starting point it would seem that Aristotle proposes to argue transcendentally, demonstrating not the truth of PNC, but that without its truth the opponent could not be doing what he is doing in acceding to what is begged of him; and this method is perhaps more naturally called a refutation than a demonstration, as Aristotle wishes—at any rate it is not a demonstration *of PNC* (for other ways of understanding 'in the manner of a refutation' see [85] p. 75, [36] p. 144, [87] n. 25).

The *Posterior Analytics* tells us that only what can be demonstrated is *epistēton*, i.e. can be understood, i.e. is part of a "discipline" or science (71^b16-19 with 100^b10-11), and this raises the question: if PNC cannot be demonstrated, what are these chapters about it doing in a treatise on the "discipline" of metaphysics? There are three main possibilities. (i) Perhaps by the time he wrote *Metaphysics* Γ Aristotle had abandoned his earlier view that only what can be demonstrated is *epistēton*, and had come to believe that 'objectivity' is also attainable by a kind of dialectic. This is the thesis of [37] and the unifying theme of [38]. (ii) Aristotle had not abandoned his view that sciences must proceed by demonstration; so since the principles of non-contradiction and excluded middle are indemonstrable, Aristotle's treatment of them in Γ 3–8 is not an exercise in the science of metaphysics as the Note on 1005^b8 asserts, but a prolegomenon or a digression. (iii) Γ 3–8 aim at demonstration, but what they aim to demonstrate is theses *about* the principles of non-contradiction and excluded middle, not those indemonstrable principles themselves; see [39]. It will be clear that the preceding paragraph adopts (iii) as solving the problem; but two further comments are in order. First, this solution would not prevent (i) and the conclusion of (ii) from being true also. Secondly, it is important to notice that Γ 3–8 are exceptional within the *Metaphysics*—indeed within the Aristotelian corpus—in aiming at demonstration, or at least sketching a method of demonstration. Aristotle's usual procedure, which is not to offer demonstrations but rather to invite his audience to join him in inquiry, is quite compatible with his believing that the *results* of successful philosophical inquiry can be set out in demonstrations, so qualifying as sciences even according to the canons of the *Posterior Analytics*.

Aristotle's attempts in Γ 4–6 to apply his procedure against the opponents of PNC contain much that is difficult, and I shall not offer

any general survey of them here. I propose only to select two particular passages for further comment, namely (according to the way the chapter is divided up in the Notes) parts I and III of the second argument in $\varGamma$ 4.

2nd argument, Part I (1006^a31-^b34). Even the structure of this passage is unclear, but here is a possible outline of the stages in it by which Aristotle hopes to bring his opponent to give way on PNC. (1) If you (use a word to) signify, you signify a determinate number of things; (2) each thing you signify (e.g. man) is the being of certain things (men); (3) if you signify something which is the being of certain things, they *must* be as in the formula of that something (men must be biped animals); (4) if so, they cannot also not be such (men cannot also not be biped animals); therefore (5) if you signify, there is something you signify (man) and some things of which that is the being (some men) such that it cannot be true to say that the latter ⟨are and are not as in the formula of the former, nor therefore that they⟩ are and are not the former.

I wish to make six comments supplementing the Note on pp. 93–9. (i) If the argument works, it shows that signifying requires the truth not of PNC but only of an instance of it. Three verdicts are possible: this is a fault ([81]); or, PNC can be reached from the instance by universal generalization ([85] pp. 112–14); or, Aristotle's project is not to reach PNC, but only to defeat an opponent who maintains that *all* contradictions are true, or at least maintains (*b*) on p. 102 of the Notes. The last is widely implied elsewhere in $\varGamma$ 4 (1006^a30-1, 1007^b18, 1008^a36, $^b10-11$, $^b31-2$) and apparently defended as adequate at 1008^a7-12 (see [85] pp. 59–61). If Aristotle's project is this limited one, the "major attraction of type 1 interpretations" (Notes p. 93) falls away.

(ii) Code ([36] p. 144, following [87] p. 104) says that "Aristotle's intent is to show that adherence to the PNC is a prerequisite for significant thought and discourse", and thereby to explain why everybody does adhere to it ([39] p. 356); but if the argument is transcendental as I have suggested, 'adherence to' should be replaced by 'the truth of'.

(iii) I now have no doubt that Aristotle's 'signify', '*sēmainein*', does not mean 'mean' or 'be explicated by' but expresses a relation which words bear to things, better translated 'signify' or 'indicate' than 'denote' (p. 94); see [90], and [64] pp. 186–90 which shows how the type 2 interpretation is not killed by this change.

(iv) The Translation of 1006^a32-4 has: "What I mean by 'signifying one thing' is this: if that thing is a man, then if anything is a man, that thing will be to be a man." Among the interpretations of this that are canvassed in the Note on p. 94 the most likely is 'if the one thing that "man" signifies is [a] man, then, if anything is a man, the one thing that "man" signifies is to be a man'. If that is the right interpretation, then

Aristotle identifies the one signification of 'man' in two different ways, as *man*, and as *to be a man*; and accordingly these two are the same as one another: man *is* to be a man. But now we face two problems not satisfactorily addressed in the Note: (i) what could be meant by 'man is to be a man'? and (ii) what is the purpose of the second condition in the sentence, "if anything is a man"? These problems can be solved together if the translation of the last four words in the sentence is revised from "to be a man" into 'for a man to be'. In [76] this latter is urged as the correct rendering over a range of Aristotelian constructions including the one here, *'to anthrōpōi einai'*; and although I am not convinced that Aristotle separated the two alternatives in his own mind, it makes better sense here. According to the revision, the two things identified as the sole signification of 'man', and therefore in effect identified with each other, are *man* and, for a man, *to be*; and that is to say that, for men, their *being* is or consists in their *being men*. "If anything is a man" now emphasizes that this account of *being* applies to everything that is a man.

(v) 1006^{b}13–28, ignored in the above outline, argues from '"man" signifies one thing' to '"man" and "not-man" do not signify the same'. (D) on pp. 98–9 comments inadequately on the purpose of this section, which I now think replies to an unstated objection of the form indicated by [10] sec. 621 (quoted in [86] p. 169) and [85] pp. 50–1.

(vi) The formulation above of (4) preserves the scope ambiguity discussed in (A) on p. 98. Here Aristotle applies the rule 'is necessarily ϕ' ⇒ 'can't not be ϕ' and possibly also the rule 'can't not be ϕ' ⇒ 'can't be and not be ϕ' (I use 'ϕ' and 'ψ' henceforward as schematic letters open to replacement by common nouns, with or without an indefinite article in English, and adjectives). Both moves raise the suspicion that he has overlooked the fact that *inference rules*, as well as starting points, can be improperly begged in a demonstration.

2nd argument, Part III (1007^{a}20–^{b}18). The Note on 1007^{a}20 (p. 100) adopts an interpretation which now seems to me mistaken of Aristotle's distinction between what it calls essential predication as in 'Callias is a man' and coincidental predication as in 'Callias is pale'. Aristotle's conclusion in Part III is that the former "kind of formula" (^{a}30) will not be available to opponents who "predicate contradictories" (^{b}18). For "it", *sc.* 'man' or 'is a man', signifies, for Callias, that his being is "nothing else" (^{a}27), *sc.* than being a man; yet "its" denials, *sc.* 'is a not-man' and 'is not a man', would signify that his being *is* something else. So the argument is: (1) each of 'man' and 'not-man' gives a complete account of the being of whatever they apply to; (2) they give different accounts; therefore they cannot apply to the same things. (2) appears to rely on 1006^{b}13, which should now, perhaps, be translated "it is not possible that 'to be' for a man should signify just what 'not to be'

[signifies] for a man". But why (1)? Why are essential predications exclusive? The Note seeks illumination from *Posterior Analytics* I 22. 83ᵃ24–32, which ends: "nothing can be pale which is not a certain other thing that is pale", *mē einai ti leukon ho ouch heteron ti on leukon estin*. By glossing this "what is pale cannot be identical with the pale that it is", i.e. subjects of true coincidental predication are different from their predicates, the Note arrives at the doctrine that "a particular man . . . *is* identical with man", i.e. essential predications are statements of identity. In that way (1) is sustained, but at the price of a "dubious theory of predication" (p. 100).

The dubious theory was ascribed to Aristotle by Owen [54] as part of an explanation of Aristotle's manner of evading the Third Man objection to Plato's Theory of Forms. In fact however (though I cannot argue it here), the evasion does not require that the form man should be identical with particular men such as Callias, but only that being a man should apply to particular men directly and not by virtue of, or through, its applying to something else. The Note on p. 168 proposes this latter as the first sense which Aristotle gives in *Δ* 18 to 'in its own right' (or 'by virtue of itself'): according to this interpretation Callias is pale not in his own right but through *having* something, the pale in him, that is pale; and only the latter *is* pale in its own right. The distinction employed here between the two relations of *having* and *being* is helpfully associated by recent commentators ([64] pp. 182–3, [75] p. 103) with two converse relations, *being in* and *being said of*, distinguished by Aristotle at Categories 2. 1ᵃ20–ᵇ9 and applied at 5. 2ᵃ19–34: in that terminology, pale is not *said of* Callias, but is *said of* something that is *in* him. Such is the doctrine ascribed to Aristotle (and criticized) in the Notes to *Δ* 18.

It is possible to interpret the sentence already cited from the *Posterior Analytics* as bearing a similar, but unfortunately not the same, sense. First, we must take it as importing the general idea that a particular such as Callias is pale indirectly or derivatively, *through* something: this even creeps into [16]'s translation of the sentence: "there cannot be anything ⟨pale⟩ which is not ⟨pale⟩ through being something differ-ent", *sc.* from pale. Secondly, we should understand '[is] different from pale' as ascribing something other than pale rather than, as in the Notes, ascribing otherness-than-pale. This further 'something' will doubtless be a substantial form such as man, which according to the language of the *Categories* is suitable to be *said of* Callias. Putting the two results together we get: pale is not *said of* Callias, but is *in* something that is *said of* him.

From all this three rival accounts emerge of the distinction between what the Notes call essential and coincidental (traditionally 'accidental') predication, that is, between two ways in which one item can be (truly) predicated of, or holds good of, another item or itself. According to the first of these accounts, when pale holds good of Callias it holds good of him in the second way (that is, coincides in him) because

(*a*) Callias is pale but is different from that pale.

According to the other two, the explanation is that he is pale not in his own right, which may mean either that

(*b*) Callias is pale through *having* something (his pale) that *is* pale,

or that

(*c*) Callias is pale through *being* something (a man) that *has* pale.

(*a*), (*b*), and (*c*), therefore, are accounts of what Aristotle means by 'pale coincides in Callias'. (*a*) now seems to me implausible. Between (*b*) and (*c*) we need not choose at present; I return to them later. Notice too that (*b*) and (*c*) could be combined, giving 'Callias is pale through *being* something (a man) that *has* something (the pale) that *is* pale'.

There is, however, a price to be paid for this departure from the Notes. The Notes invoke account (*a*), the "dubious theory of predication", for the purpose of defending (1) in Part III of Aristotle's second argument in defence of PNC, viz. 'each of "man" and "not-man" gives a complete account of the being of whatever they apply to'. It is not clear to me how (1) can be sustained on either of the other two accounts, although Weidemann in [76] thinks that it—his "first premiss" on p. 79— can be.

(The labels 'essential predication' and 'accidental (or coincidental) predication' come from the tradition, but Aristotle himself usually means something different by 'predicate coincidentally'. In the tradition, as we have seen, a predication is coincidental when its predicate coincides in its subject, thereby affording the subject only a derivative title *to be called by that predicate*. In Aristotle, a predication is coincidental when it has only a derivative title *to be called a predication*; see *Prior Analytics* I 27. 43ᵃ33–6, *Posterior Analytics* I 22. 83ᵃ14–17, [16] pp. 116–17. The same predication might of course be coincidental in both senses.)

Δ 6, 9; *E* 2: IDENTITY

I shall next look at Aristotle's views on identity, which, although they are not very pervasive in books *Γ*, *Δ*, and *E* of the *Metaphysics*, have attracted comment in the recent literature that has spread out, as we shall see, over neighbouring relevant topics. I centre my discussion on a question to which I shall eventually give the answer 'No'. It is:

Did Aristotle reject the Law of the Indiscernibility of Identicals? Let us henceforward use '*a*', '*b*', etc. as schematic letters open to replacement by any of the types of expression that Aristotle, in his relaxed way, allows himself as grammatical subjects of unquantified sentences, e.g. 'Coriscus', 'man', 'the man', 'the pale', 'the pale Coriscus', 'pale man', and so on.

Then the Law states that if a and b are identical, everything true of a is true of b—they share the same properties and history. It must be distinguished from the Substitutivity Law, that if two expressions 'a' and 'b' refer to the same thing, either can be replaced by the other without affecting truth value, *salva veritate*. The Substitutivity Law makes a claim about language, which might be true of one language but not of another. As stated, it is not true of English or Greek; see [105].

But the Law of the Indiscernibility of Identicals, which following current philosophical usage I shall call Leibniz's Law (Leibniz himself may rather have intended some qualified version of Substitutivity) is not about expressions of a language but about identity. It has generally been regarded as analytic, constitutive of the concept of identity (thus [101] and [104] see the question whether Aristotle accepts Leibniz's Law as the question whether he 'has the concept of identity'). In its formulation the word 'identical' could be replaced by 'the same'; for it is an illusion to suppose that standard English, even scholarly English, firmly distinguishes these Latinate and Anglo-Saxon adjectives—certainly the earliest writers of philosophical English, slowly learning not to think in Latin, chose either expression indifferently. However, it is well known that care of a different kind is needed in interpreting, or applying, the Law. We are not meant to suppose that if a and b are, for example, the same age, or composition—i.e. identical in age or composition—then they must share all the same properties and history. The Law applies only with a certain range of qualifications after 'same', such as 'man' or 'table' or, definitively, 'thing'. *This* distinction, familiar though not marked by any simple linguistic test, we have learnt to label as the distinction between qualitative and numerical identity, using terminology inherited ultimately from Aristotle himself. Once we are equipped with the terminology we can express Leibniz's Law unambiguously in the form: *if* a *and* b *are numerically the same (or numerically identical),* a *and* b *share all the same properties and history.*

Although Aristotle in the *Topics* more than once recommends use of a principle at least similar to Leibniz's Law, apparent exceptions to the Law were well known to him. An example is the road from Thebes to Athens and the road from Athens to Thebes, presented at *Physics* III 3. 202^{b}13–16 as not having "all the same things holding good of them". Aristotle's comment is that "only in the case of things whose being is the same *(hois to einai to auto)*, not things that are the same in any old way, do all the same things hold good of them" (compare the somewhat similar formulation at *De Sophisticis Elenchis* 24. 179^{a}38–40), from which he must infer that the being of the roads is not the same. Some commentators see this as implying a restriction on Leibniz's Law ([19] pp. 66–71, [101] pp. 179–80), but Aristotle's example will not admit a *real* exception to the Law unless he regards the roads as numerically the same even

though their being is not the same. Could he suppose that to be possible? In some places 'same in being' is replaced by the apparently synonymous 'same in formula, *logos*', here ". . . in the formula saying what it is to be" (202^b12). It is true that each of the roads in question has a different formula, its own. Yet if they were numerically the same, they would *also* have each other's formula, and so not differ in being. We have to assess the probability that Aristotle recognized this inference—or the feasibility of his carrying on without it. Certainly at *Δ* 6. 1016^b9–11 (cited by [110] p. 71) he says that "things which . . . do not have one formula we in fact reckon as more than one thing"; and see *De Sophisticis Elenchis* 24. 179^b1–4. On the other hand *De Generatione et Corruptione* I 5. 320^b13–14 contrasts 'one in formula' with 'one in number'. The matter remains controversial (see Bibliography); but it is possible to argue that Aristotle deals with all apparent exceptions to the Law by denying that they are real exceptions, and in particular that his regular solution is that purportedly identical items whose properties differ are identical in some other way than numerically ([110] pp. 66–74).

What might be a suitable way for the roads from Thebes to Athens and Athens to Thebes to be the same, yet not numerically the same? We can easily suppose, although the *Physics* does not tell us, that the roads are examples of what *Metaphysics* *Δ* 9 calls coincidental (or 'accidental') sameness; and there is some evidence that coincidental sameness fills the bill. For in the same chapter of *Δ* Aristotle says that "man and artistic [are the same coincidentally, *t'auta kata sumbebēkos*] because one of them coincides in the other" (1017^b29). The remark makes it look like Aristotelian doctrine that *two* things can be the same coincidentally.

The Note on 1017^b27 dismisses this putative doctrine as an inexcusable error; but more needs to be said. Whatever we think about man and artistic (*mousikos*; others translate 'musical' or 'educated' or 'cultivated') being two and yet also the same, there is no difficulty in understanding how things might be two and yet also *one*; for they might be two elements which make up a single composite, as for example two (or more) flowers may make up a single bunch. In *Δ* 6 Aristotle gives examples of this type of unity, which the Notes call type 1. The Notes argue that he treats coincidental unity as of type 1; for example, he sees man and artistic, or Coriscus and artistic Coriscus, as *two* items that are coincidentally one because they make up one composite, in the latter case by the peculiar process of one of them being included in the other.

The Notes on *Δ* 6 propose that Aristotle uses this theory of composition to explain a manner—coincidental sameness—in which items such as Coriscus and artistic Coriscus are *numerically* the same, and that he exploits for the purpose a regular Greek ambiguity by which expressions like 'the artistic' can refer either to artistry (an 'affection') or to its bearers. The explanation is that Coriscus is numerically the same as the

artistic, *sc.* some bearer of artistry, by reason of having the artistic, *sc.* artistry, coinciding in him; this is further developed by [101]. In support of the view that coincidental identity is, after all, a kind of numerical identity we may adduce *Topics* I 7. 103ᵃ24–31, where Aristotle speaks of what is the same "from a coincidence", *apo tou sumbebēkotos*, as being "one in number".

The Notes find this doctrine confused (p. 134; but something on the same lines is defended in [57] pp. 367–8 and [111]). We might hope to absolve Aristotle of the confusion by substituting the different interpretation of this part of *Δ* 6 which has been proposed by Code [103] and Matthews [104], and which might be called inflationist on the ground that it has the appearance, at least, of making Aristotle postulate extra entities that "bloat" his ontology (though both [103] p. 178 and [104] p. 237 think they can acquit him of bloating). At *Physics* I 7. 190ᵃ19–20 Aristotle says that when a man becomes artistic, "the inartistic does not persist". Since it is clear that inartistry may persist, in some other man, "the inartistic" ought here to refer either to *this man's* inartistry or to the bearer of it which existed while this man was inartistic. Suppose it refers to the latter; then Aristotle's theory sees the bearer as a stage or space-time part ([103]). The inartistic and the man are one thing in the sense of making up one thing; but the one thing is made up not by the inherence of affections, as the Notes suggest, but by the concurrence of such parts. When the man becomes artistic one such part, a bearer of inartistry, goes out of existence and another, a bearer of artistry, comes into existence; while a third, the man, persists. Yet the last of these parts will be the same as one of the others over the time of its concurrence with that other, much as two merging roads can be the same over their common stretch.

Opinions may differ as to the merits of this ontology: [103] is happy with temporal stages, whereas [104] p. 224 calls accidental unities "kooky objects". One virtue the interpretation does however possess: it is able to reconcile Aristotle's apparently conflicting claims that coincidental identity is (*Topics* I 7. 103ᵃ24–31) and is not (*Metaphysics Δ* 9. 1017ᵇ29) a kind of numerical identity. It both is and is not. Absolutely speaking, artistic and man are two, because *one* of them coincides in *the other*; but they are one for a time, the time of their concurrence. We are shown a way in which *two* things can be *numerically* the same thing.

The case for inflationism in [103] and [104] rests heavily on a certain reading of Aristotle's account of change in *Physics* I 7. I now turn to *Metaphysics E* 2. 1026ᵇ15–24, where an interpretation has been offered by Williams [126] which seems to me superior to what is proposed in the Notes (as also to that in [103] and [104]) and which would, if correct, undermine that reading.

E 2. 1026ᵇ18–20 reports sophists as posing the conundrum "whether

everything that is, but not always, has come to be, so that if someone, being artistic, has come to be literate, he has also, being literate, [come to be] artistic". Williams proposes the following reconstruction: suppose an artistic person has come to be literate; then there is an artistic literate person; but that has not always been so; therefore the artistic literate [person], which is the same as to say the literate artistic [person], has come to be; therefore a literate person has come to be artistic. (The author of K's report at 1064^{b}23–6 is quite close to this.) The solution in the Notes, drawn from *De Sophisticis Elenchis*, is no longer appropriate. Williams finds Aristotle's solution in the lines of E 2 which follow, 1026^{b}21–4, where the Translation has, "For what is coincidental is obviously close to what is not, as is plain also from arguments such as this: that with things-that-are in another sense there is [a process of] coming to be and destruction, but with things [that are] coincidentally there is not." Pointing out that Aristotle's text has '*for* with things that are . . .', Williams takes 'such' to refer to the preceding sophistic arguments, and the second 'for . . .' clause to explain what is wrong with the argument in ^{b}18–20 by contesting its use of the assertion that "everything that is, but not always, has come to be". The assertion was used to infer that the artistic literate has come to be *be*, speaking baldly (*haplōs*, traditionally '*simpliciter*', here meaning without a complement after 'be'); but the artistic literate *is* coincidentally, and what *is* coincidentally does not come to be *be*, speaking baldly. Accordingly Williams amplifies the Greek of 1026^{b}23 into 'coming to be [baldly] . . .', not '[a process of] coming to be . . .'.

This is an improvement. It presents Aristotle with a unified, if understandably hesitant, doctrine about things that *are* coincidentally, such as literate Coriscus or the literate artistic: namely that (i) they do not come or cease to *be*, speaking baldly; (ii) they not even *are* centrally, but are "close to what is not"; and (iii) they are "like mere names" in that their names hardly succeed in referring to anything. By contrast there is, as the Notes complain (p. 196), no plausibility in the thought imputed by the Translation that coincidences take no time in coming and ceasing to be.

But the result alters our reading of Aristotle's account of change in *Physics* I 7. The inartistic which "does not persist" when a man becomes artistic *is* coincidentally. Therefore it does not cease to *be*, speaking baldly, when the man ceases to be artistic; and similarly the artistic does not come to *be*, speaking baldly; "does not persist" is shorthand for 'does not remain inartistic'. A similar deflationist reading—revising [18] pp. 100–2—may be possible at *De Generatione et Corruptione* I 4. 319^{b}25–9. Matthews' kooky objects and Code's temporal stages are not yet on the scene.

Plenty of obstacles remain, however, in the way of attempts (such as

that outlined by Williams in [106]) to purge Aristotle of these excrescences. I end this section by drawing on the somewhat different inflationist interpretation in Lewis [109] and Matthen [72] in order to amplify and amend the Note on Δ 6. $1015^{b}16$ ff.

De Sophisticis Elenchis 24 presents solutions to fallacious refutations depending on coincidence. At $179^{b}2-4$ Aristotle has this comment on one such fallacy: "so it is not the case that if I know Coriscus but am ignorant of the [man] approaching, I know and am ignorant of the same [man]." It is supposed that the thing approaching is Coriscus. But Aristotle proposes to escape inference to 'I am ignorant of Coriscus' by means of the following principle: "it is not necessary that what is true of what coincides be true also of the actual thing [it coincides in]" ($179^{a}36-7$). This is not a restriction on Substitutivity (*pace* [108] p. 145; perhaps it should be), because for Aristotle things, not words, are 'true of'. Nor is it a restriction on Leibniz's Law, for the example shows him denying that the approaching [man]—"what coincides"—and Coriscus—"the actual thing"—are the same. His diagnosis is that an apparent exception to Leibniz's Law is not a real exception because (1) Coriscus and (2) the approaching [man] are *two*. It is a short step from this to what [109] calls Accidental Compounds, such as (3) approaching Coriscus. Aristotle's "theory is that just as the expression 'the artistic Coriscus' is a complex of the words 'the artistic' and 'Coriscus', so what it designates is a complex of two non-linguistic items, the artistic and Coriscus" (Notes p. 134; artistic man is called a "whole" at Δ 11. $1018^{b}34-5$). Yet the two items (1) and (2) and the two items (1) and (3) each have a certain kind of sameness, coincidental sameness, which holds when (3) exists, i.e. when Coriscus is approaching (see *Metaphysics Z* 12. $1037^{b}14-17$, [72] p. 124). Matthen [72] makes comparisons with Plato and perhaps Parmenides, and Lewis [109] works out the logic of such relationships (not quite these ones, because Lewis identifies (2) and (3), and takes (3) as compounding Coriscus with the *affection* of approaching, not with (2), its bearer). Lewis also shows how the theory makes sense of Γ 4. $1007^{a}33-^{b}18$, on which I shall offer my own fresh comment below.

What should we say of such a theory? (i) It treats coincidental sameness as not a kind of numerical sameness, despite *Topics* I 7. $103^{a}24-31$ and contrary to the Note on Δ 9. $1017^{b}27$. Hence if all apparent exceptions to Leibniz's Law are cases of coincidental sameness, then Leibniz's Law has no exceptions. (ii) There is a good chance of representing Aristotle as holding that all apparent exceptions to Leibniz's Law are cases of coincidental sameness; for example, the road from Thebes to Athens will be a compound consisting of the road and the [thing] leading from Thebes to Athens (or if [109] is right, consisting of the road and the direction from Thebes to Athens). (iii) The theory is surely vulnerable to the criticism on p. 145 of the Notes: "it is wrong to regard

the [compound] designated 'artistic man' as a combination of two items, the man and the artistic (either 'the artistic' means 'someone artistic', in which case there is only one item, or it means 'artistry', in which case we face the impossible question 'is the man-element in the complex artistic or not?')"—accidental compounds are indeed kooky. (Later ancient Sceptics proved the kookiness of a similar Aristotelian excrescence, relatives—see [98]; but the complaint as a whole is rejected in [72] p. 125 and n. 24.) (iv) The solution into which, if [126] is right, Aristotle was goaded by the sophistic conundrum of E 2. 1026^{b}18–20, offers promise of a different, deflationist account of these compounds, agreeable to those who like their Aristotle to be commonsensical (something I hankered after when I wrote the Notes). But Aristotle did not work it out; and had he done so, at least many of his problems about identity, most of which I have not touched on, would have needed new solutions—perhaps through the distinction, still today not firmly grasped by all commentators, between Leibniz's Law so called and the Law of Substitutivity.

$\varDelta$ 7, E 2: BEING

Aristotle says, "But that which *is*, when baldly (*haplōs*) so called, may be so called in several ways. One of these was that [which is] coincidentally, another that [which is] as true ... Apart from these are the figures of predication ... again apart from all these, that [which is] potentially and actually" (E 2. 1026^{a}33–^{b}2). Discussing the word 'baldly' the Note on 1026^{a}33 concludes that "in E 2 'is baldly' means 'exists' ".

But that won't do. In the first place, 'is baldly' is not something that gets said or written; one says 'is' baldly, not 'is baldly'. Secondly, the English verb 'exist' *must* be said baldly—it admits no complement; but there is no evidence that Aristotle, or any other ancient Greek that I know of, perceived a sense of the verb '*einai*' in which it must be said baldly. When they heard a bald use, as 'Socrates is', they heard it always as admitting, though not necessarily inviting, a complement; they heard it as we hear 'children learn' not as we hear 'children grow' (in learning, children learn things, but in growing they do not grow things—I owe the example and the point it makes to Brown [80]). Admittedly the Greek '*einai*' gets used baldly not only, as with English 'be', when a particular complement is understood from the context, typically in answer to a question as in 'Yes, he is', but also where English would use 'exist', for which the ancient languages had no separate word (this latter is what the Note means by non-elliptical being). But the syntactical fact that it always admits a complement debars '*einai*' from ever *meaning* the same as 'exist', which does not admit a complement.

Despite this syntactical difference there are fairly close similarities in the logical behaviour of 'exist' and of *'einai'* used baldly. I count these three: each implies 'is something'; it is a defensible philosophical thesis that in any occurrence of each there is some ϕ such that the occurrence implies 'is ϕ'; but neither of the reverse implications holds without restriction (however, the restrictions may well diverge; see [71]). If we add that Aristotle's phrase "that which *is,* when baldly so called" is presumably intended not to cover occurrences where the context supplies a complement, I think we can save the substance of the conclusion in the Notes, viz. that the phrase indicates cases in which English 'exist' would be a fairly natural paraphrase of the Greek *'einai'*—and, one might add, in which English 'be' without supplement would not be natural at all.

The same fourfold division appears in Δ 7, but applied to "that which is" without explicit restriction to what is "so called baldly". The Notes argue that the restriction is already implicit there, at least in the treatment of what is in its own right (interpretation (2), pp. 141–3), probably in the treatment of what is coincidentally (interpretation (3), p. 144). These conclusions have not found favour. Both are rejected in [71], and also by Thorp in [69], who is satisfied that "there is nothing in the deployment of the four uses of *einai* in Δ 7 which looks remotely like the existential use" (p. 254); according to Thorp 'what is baldly' does not "mean 'existential being'" in E 2 either, though it does in some other places (p. 255). Grice takes the same view about $1017^{a}27$–30 ("at least at ⟨t⟩his point", [64] p. 180).

It may nevertheless be worthwhile to draw out some further consequences of this disfavoured interpretation, which gets itself—or Aristotle—into a major difficulty not acknowledged in the Notes.

Coincidental being. According to the Notes Aristotle means us to find coincidental being by reading his Δ 7 examples in a way that demands the English word order in 'the just artistic *is*', 'the man artistic *is*', and 'the artistic man *is*'; and he means us to account for it as derivative from the being of something else—here a man—in whom the artistic, or the just and the artistic, coincide. The statement in the Notes of this interpretation, "'coincidental' means 'derivative'" (p. 144) is sloppy, if not worse; rather *'is* coincidentally' means *'is,* by a coincidence of itself or its parts or one of its parts in something else that *is*'. Aristotle's parenthetical example of the not-pale, so far from "having nothing to do with coincidental being" as the tortuous Note on p. 146 complains, fits the interpretation without difficulty (and could be attached to the general account of being, said baldly, in [71], as on [71] p. 431).

Being in its own right. The things "said to *be* in their own right" are "all things which signify the figures of predication", exemplified amongst others by what signifies "a quantity" and "a qualification" ($1017^{a}22$–6). As the Notes later explain (pp. 160, 162), these translations follow [13]

in using abstract nouns where Aristotle has two adjectives, '*poson*' and '*poion*'. The meaning of the adjectives may be interrogative ('of what amount', 'how qualified') or indefinite ('of some amount', 'qualified'). Aristotle's choice of them is no stylistic quirk, for he possesses abstract nouns '*posotēs*' and '*poiotēs*' (from which descend our 'quantity' and 'quality') and means something different by them: thus *Δ* 14. 1020ᵇ17–24 tells us that while *poiotētes* include such things as excellence and badness, and in general affections, "the good and the bad signify qualification (*to poion*)"; instances of a *poiotēs* are at best what *Categories* 1. 1ᵃ12–15 has called paronyms of instances of (or of answers to the question) *poion*, that is, things whose names are derived from their names—e.g. hot*ness* is a paronym of the hot. We should infer that the things said to *be* in their own right are such things as the good and the just and the pale and the big, not such things as excellence and justice and pallor and size. A whole new army of kooky objects seems to loom.

I make no comment on this apparition, but turn instead to a particular consequential difficulty that the Notes do not address. 1017ᵃ18–19 has just told us that the not-pale *is* coincidentally, not in its own right; and if the interpretation preferred in the Notes is right, the same applies to the just artistic, and the artistic man. Why then should the pale, and other things signifying *poion* etc., *be* in their own right? *Categories* 4. 1ᵇ25 offers a clue, by specifying the "things which signify . . . *poson* . . . *poion* . . ." etc. as "said without any combination". In *Δ* 7 we are given a different specification, "things predicated", but perhaps it means the same: perhaps things predicated have to be said in single words, not in phrases like 'not-pale' ('*mē leukon*') or 'pale man'.

This is not very convincing, because it is hard to see how the existence of a one-word designation should make the difference, among things that coincide in substances, between those that *are* in their own right and those whose very *being* is coincidental. But let us suppose the difference does exist, however it is made; then two dogmas of traditional Aristotelianism disappear from the *Metaphysics* of Aristotle himself. One is the dogma that accidents, in the sense of things that *are* coincidentally, are the same as accidents of a substance, in the sense of things that coincide in a substance. On the above interpretation this is wrong in any case, because things that *are* coincidentally include items such as artistic man, only part of which coincides in a substance (the other part); it will now be wrong in the other direction too, because things that signify *poson, poion*, etc. will coincide in a substance without *being* coincidentally. The other dogma is that Aristotle's categories comprise substances and accidents. On the contrary, if by 'categories' we mean (as traditionally) the "things said without any combination" of *Categories* 4. 1ᵇ25, which surely are or at least include the "things which signify the figures of predication" in *Δ* 7, these things exclude some accidents of substances, such as the

not-pale, and they exclude all other accidental *beings*, such as artistic man.

(It is often taken that the categories comprise—besides substances— quantities, qualities, relations, and so on. That too is ruled out by Aristotle's distinction between *poion* etc. and *poiotēs* etc.; and he does not even have a word for 'relation'. Qualities, *poiotētes*, are among the things mentioned in *Γ* 2. 1003ᵃ33–ᵇ10 as being called things that *are* because they are something or other *of* a substance; they are so called "with reference to" that "one particular nature". Accidents in the sense of accidental beings, the things that *are* coincidentally, must not be counted in this group, because *E* 2. 1026ᵇ2–4 will exclude them from the discipline whose subject matter the group delimits.)

The Note on 1017ᵃ35 agrees with Aristotle that 'sees', and hence 'is one-that-sees', are ambiguous; but complains that "he does not explain how, in the latter case, the ambiguity is transferred from 'sees' to 'is'" (p. 146). For a possible explanation see [62].

Δ 30: COINCIDENCE

The notion of coincidence, traditionally 'accident', pervades every part of the Aristotelian corpus. In these books of the *Metaphysics* it plays a role, as we have seen above, in Aristotle's attack in *Γ* on the opponents of PNC; several chapters of *Δ*, especially 6, 7, and 9, invoke it in making their main division among the various "ways of being called" whatever that particular chapter is about; *Δ* 30 has coincidence as its own subject matter; and *E* 2 argues that "there is no study that deals with that [which is] coincidentally" (1026ᵇ3–4). The meaning of Aristotle's verb '*sumbebēkenai*' is discussed on pp. 76–7 of the Notes, and there are other relevant Notes on pp. 101–2, 133–5, 143–6, 180–2, and 190–5. Here I shall try to draw some threads together. (Aristotle's treatment in *Topics* I 5 is puzzlingly different, and puzzling in itself; but, as in the Notes, I will continue to ignore it, despite the just complaint in [117] n. 6.)

There are three constructions to consider:

(1) *a* coincides in *b* (*tode tōide sumbebēke*)

(2) *a* is coincidental, or a coincidence (*sumbebēkos*)

(3) *a* is ϕ coincidentally (*kata sumbebēkos*)

Let us first look at (1); (2) and (3) will be definable in terms of it. Throughout it is important to remember that (i) some commentators on Aristotle, notably Sorabji in [112] ch. 1, use 'coincidence' *not* to translate '*sumbebēkos*' but in its modern English sense, and (ii) many use other words to translate '*sumbebēkos*', e.g. 'accident', 'incidental', 'concurrence', 'concomitant'.

(1) We learn a good deal about the relation of *coinciding in* from *Γ* 4.

1007^a33-^b18. $^a34-^b1$ says: " 'coincidental' always signifies a predication about a certain subject". In Aristotle's usage subjects, *hupokeimena*, must be other than what is predicated of them: therefore *coinciding in* is an irreflexive relation. $^b2-4$ continues: "the coincidental is not coincidental in the coincidental, unless because both coincide in the same thing". This may look like a statement of transitivity (the Note on p. 101 nonsensically refers to it as "the transitive case"), but Aristotle's meaning is different. As his following example shows, he has in mind the case in which *a* and *b* coincide in one another; this can happen, but only if—and because—each coincides in some third thing *c*. (I am afraid that the same Note misrepresents this as "a predicate of X's predicate must be a predicate of X", a different and contentious thesis on which see especially [57].) Since mutual coincidence of *a* and *b* is possible, the relation is not asymmetrical; and since it is irreflexive, it follows that it cannot be transitive. $^b5-6$ then distinguishes two "ways" of coinciding, one the way in which the pale coincides in the artistic, the other that in which the pale coincides in Socrates. The former occurs "because both coincide in the same" third thing, and is therefore—though Aristotle does not say so—a secondary way of coinciding, explained through the other primary way (in the language developed under (3) below, he could have said that the pale coincides *coincidentally* in the artistic). Next we are told ($^b9-10$) that there cannot be "some other thing", *sc.* than the pale, coinciding in the pale Socrates. The upshot is that the pale can coincide, in the primary way, only in a substance ($^b17$). Since coinciding is "predication about a certain subject", it might seem that substances cannot themselves coincide, unless perhaps in matter. But Aristotle does not stick to this. For example *Metaphysics Z* 5. 1030^b20-1 speaks of ". . . [a] white in which being a man coincides"; and *Δ* 2. $1013^b36-1014^a1$ (=*Physics* II 3. 195^a34-5) says that when Polyclitus makes a statue, that is because "being Polyclitus coincides in a [literally: the] statuemaker". (We may note that, because the converse also holds, viz. statuemaker coincides in Polyclitus, this is another proof that Aristotle cannot allow the relation of *coinciding in* to be both irreflexive and transitive.)

On the other hand, we never hear of man coinciding in Callias, or animal in man. The Note on p. 101 explains this as resting on Aristotle's doctrine that 'Callias is a man' and 'man is an animal' express identities; but since I now think Aristotle held no such doctrine, we must look for another explanation. It has already been offered. Man holds good of Callias "in his own right *(kath' hauton)*", whereas what coincides in a thing holds good of it derivatively, in the sense:

(C) ϕ (equivalently *the* ϕ, or *being* ϕ) coincides in *b* when *b* is ϕ through something else being ϕ.

Earlier I elaborated (C) in terms of Aristotle's distinction in the *Categories*

between being *said of* and being *in*: thus φ would coincide in *b* when *b* is
φ either through φ's being in something said of *b*, or through φ's being
said of something in *b* or (combining them) through φ's being said of
something in something said of *b*. But this elaboration will not fit
untypical examples such as that of Polyclitus in *Δ* 2, because being
Polyclitus is not *in* anything, nor is it *said of* anything in the statuemaker
(it is presumably said of man, which is said of, not in, the statuemaker).
So I now suggest the broader and less technical formula (C). Even so, of
course, quite a strange result follows for Polyclitus, namely that the
statuemaker is Polyclitus through something else being Polyclitus. Yet
this strangeness is exactly what Aristotle's entanglement with kooky
objects will deliver: being Polyclitus holds primarily of a certain sub-
stance, a certain man; the statuemaker is something *else* than—only
coincidentally the same as—that man. (The fact that (C) makes a
contrast with what holds good of a thing in its own right is perhaps
sufficient to justify the Notes in giving the corresponding sense of 'coinci-
dental' as "non-essential".)

(2) 'a *is coincidental*', or ' . . . *a coincidence*' (both words translate '*sumbebē-
kos*') is sometimes followed by 'for *b*'; in that case it simply means '*a*
coincides in *b*'. If the context supplies no *b*, the meaning may be '*a*
coincides in *x*' with the context supplying some quantifier in '*x*' (e.g.
'*a* coincides in *something*'); but more usually—and indeed most usually—
'*a* is a coincidence' has an absolute meaning, which could loosely be
expressed as '*a* is the resultant of some *c* coinciding in some *d*'. In this
sense a coincidence is a kind of complex entity, composed of two
elements one of which coincides in the other.

We have already identified some of these complex entities as [109]'s
Accidental Compounds: the artistic Coriscus, the artistic man, the artistic
pale. *Δ* 30 brings us four more examples, and at the same time offers, in
effect, two further accounts of what a coincidence is. The first example in
Δ 30 is a relative case where 'is coincidental for' can be understood
without difficulty as meaning 'coincides in': "the finding of treasure is
. . . coincidental for him who is digging the trench" (1025[a]16–17). The
second is introduced by means of a complete sentence, in effect 'the
artistic is pale', which gives the impression that the item referred to (*"this*
comes to be . . . we call *it* coincidental", 1025[a]21) is a conjunctive event
or state of affairs, that of something's being both artistic and pale, rather
than an Accidental Compound, the artistic pale. In the third example
this impression is strengthened. The case is again a relative one; indeed
the Translation, "it was a coincidence for someone to visit Aegina" ([a]25–6),
masks the fact that Aristotle actually uses the finite verb 'coincided
in', albeit in the aorist (*sunebē*) and not, as usually, the perfect tense. But
this example does not identify for us the *two* elements which, according

to the account of coincidence so far given, combine together to produce an Accidental Compound. We should expect something like 'visiting Aegina coincided in *Plato*' or '... in *the traveller to Piraeus*'—*they* visited Aegina through something (allegedly) 'else', the captive-of-Aeginetan-pirates or the hugger-of-an-Aeginetan-lee-shore, visiting the place; whereas what Aristotle actually says is that visiting Aegina coincided in "someone". Perhaps we can supply the extra element for ourselves; but because of Aristotle's manner of expression it is once again rather more natural to think of the coincidence involved as a less kooky—or at any rate a more familiar—kind of entity, a conjunctive event (see also the example at *Posterior Analytics* I 4. 73^b11-12, "it lightened when he went for a walk").

Aristotle comments on his first three examples that there is "no definite cause of the coincidental, but a chance one" (1025^a24-5); and this looks like a new account of what it is for one thing, the ϕ, to coincide in another thing, b, so that their resultant is a coincidence: that happens not, or not only, when b is ϕ because something else is ϕ, but also when b is ϕ because of a chance cause.

Since Aristotle's views about chance causes belong to *Physics* book II (see [15], [120]), only three further remarks are in place here. (i) It may have been less clear to Aristotle than it is to us that there is a difference between an Accidental Compound such as the Piraeus-bound Aegina-stranded, and a conjunctive event such as its happening that someone is both bound for Piraeus and stranded in Aegina. (ii) The 'new' account of coincidences is not so different from the old one that they might not be worked into some sort of unity. (iii) There is a further 'new' account of coincidences in Δ 30's initial statement of what "we call coincidental", viz. "what holds good of something ... but neither of necessity nor for the most part". It seems best to regard this official statement as *derived* from the first 'new' account, by means of the following three further assumptions: (*a*) when b is ϕ not because of a chance cause, it is ϕ because it is b, i.e. b's being ϕ is what the Note calls "self-explanatory" (p. 181); (*b*) causes can always be given by, and never without, citing "usual or constant conjunctions" (ibid.); and (*c*) what happens constantly happens necessarily. The Note on 1025^a14 makes some critical remarks about these assumptions; see further [119] and [120].

In Δ 30's fourth example of a coincidence, 1025^a30-2, Aristotle says that "possessing two right angles" is a coincidence because it holds good of a triangle "in [the triangle's] own right without being in [the triangle's] substance". Here we are meant to understand 'coincidence for the triangle' (indeed "[does] for" might be better than the Translation's "[does] of" at 1025^a32, making us supply "is a coincidence" rather than "holds good" as the unexpressed verb); so the sense is once more 'coincides in'—"non-essential" as the Note has it. On the other hand a

new *kind* of coincidence appears in this example, an in-its-own-right coincidence, traditionally *'per se* accident'. This kind is important to Aristotle as what Barnes calls "the staple of demonstration" ([16] p. 115); for in the conclusion of any demonstration the predicate (i) holds good of the subject in its own right (because understanding, *epistēmē*, is always of what holds good of something in its own right, and what is demonstrated is understood) and (ii) coincides in the subject (because it holds good of it through something else, viz. a middle term). The sense of 'in its own right' here is more difficult; see [118].

(3) *'Coincidentally'* is used in the Translation to render the adverbial phrase *'kata sumbebēkos'*, more literally 'by, or in virtue of, a coincidence' (traditionally *'per accidens'*), for as Aristotle tells us at *Δ* 18. 1022ᵃ19–20 *'kata'* indicates some kind of cause. When *a* is *φ* by virtue of a coincidence, the coincidence 'causes' *a* to be *φ* by being the medium through which *a*'s being *φ* is derived from something else's being *φ*. The coincidence thus *explains a*'s being *φ*, and contrasts with the case where *a*'s being *φ* "cannot be made plain separately", *sc.* from *a* (*Metaphysics Z* 5. 1030ᵇ24–5). The simplest kind of derivation occurs when *a* is *φ* through coinciding in some *b* that is *φ*; but two complications may arise, individually or together. *φ* may be relational, i.e. *ψ* to some *c*: this adds the further possibilities that *a* is *ψ* to *c* coincidentally through being *ψ* to some *d* that *c* coincides in, or (combining the two) that *a* is *ψ* to *c* through coinciding in some *b* that is *ψ* to some *d* that *c* coincides in. The other complication is that *a* itself may be a coincidence, call it a^1a^2: then a^1a^2 may be *φ* through a^1's coinciding in a^2 and a^2's being *φ*, or conversely, or through each of a^1 and a^2's coinciding in some *b* that is *φ*; and of course the same thing can happen with *c*, or with both *a* and *c*.

These books of the *Metaphysics* present us with four chief instances of being *φ* coincidentally: (*a*) being, (*b*) unity, (*c*) identity, and (*d*) causation. (*a*) In the simple case—according to the Notes—*a is* coincidentally when *a* coincides in some *b* that *is*. There may be the complication that *a* is itself a coincidence. (*b*) Coincidental unity introduces both of the complications, for as the Note shows (p. 133) Aristotle's examples seem to include cases where the predicate is relational (*a* is *one with c*), cases where the subject is a coincidence (*ab* is one), and cases having both features (*ab* is *one with c*). It has to be admitted that in coping with these examples he does not always explain coincidental unity through coincidence in something *that is one*. (*c*) Coincidental sameness will admit many of the same analyses as coincidental unity since, if the remarks above are correct, we can apply to *this* kind of sameness, and to *relational* oneness, Aristotle's contention that "sameness is a . . . oneness . . . of the being of more than one thing" (*Δ* 9. 1018ᵃ7–8). (*d*) Coincidental causation exhibits a similar variety (see [120] p. 79). For example the statuemaker

Polyclitus coincidentally made an eyesore if being Polyclitus coincides in a statuemaker who made a statue in which an eyesore coincides. It is worth noticing that these accounts of Aristotle's meaning would permit him to say that the pale, or the pale Socrates, is coincidentally a *substance*; but he never says such things.

E 3: DETERMINISM

Metaphysics E chapter 3 is short, difficult, and not clearly connected to its context. It deals with, or is relevant to, determinism in all the common acceptations of that name (often assumed without argument to be equivalent), viz. 'the thesis that everything is always necessary (it was never possible that it should have been otherwise)', 'the thesis that everything has an antecedent cause', and 'the thesis that everything has an antecedent necessitating cause (which makes it necessary from the time when the cause is necessary)'. The Notes conclude (p. 198) that "the chapter has not yet received a satisfactory interpretation"; and despite the appearance of many new studies (see Bibliography) since those words were written, I believe they are still true in 1992.

Recent work has tended to agree with the Notes to the extent of favouring an interpretation of the argument which embodies (*e*) below; but I am now more sceptical. According to the Notes, the "thesis of the chapter" (p. 197) is that *there are causes that take no time in coming and ceasing to be*; and the chapter's first paragraph argues that otherwise, since

    (*e*) everything that does take time in coming and ceasing to be is itself non-coincidentally caused,

indeterminism in the sense

    (*a*) not everything is necessary all the time (p. 196)

would be ruled out, i.e. determinism in the sense of the negation of (*a*) would follow. Although all that would follow directly is that every cause is itself non-coincidentally caused, the Notes show how to distil from the second paragraph a further premiss

    (*b*) everything is necessary from the time when it is caused,

which permits an onward step towards determinism. It may do so in either of two ways: if, as the Notes suggest, 'non-coincidentally' in (*e*) means 'at all times', then (*e*) and (*b*) yield that everything caused would be necessary at all times; perhaps more plausibly, the same result can be reached if (*b*) is replaced by

    (*b*1) everything is necessary from the time when it has a causal ancestor,

which like (b) follows from principles that Aristotle may accept ('every-thing is necessary from the time it happens', and 'causes necessitate', i.e. any necessity they possess at a time is transmitted to their effects at that same time). Although this result is still not the universal determinism which Aristotle claims to extract, and rejects as absurd by (a), it is at least uncomfortably close to that absurdity. For the shape of the argu-ment see [127] pp. 49–50.

More pressing than quibbles about the merits of this proof, more pressing, initially, even than doubts whether it captures Aristotle's mean-ing, is the question what its point is. Many commentators have discerned a hidden message in the chapter, different from the 'thesis' it announces. The author of K 8, admittedly a floundering interpreter of E 3 as a whole, begins his summary by representing the "origins and causes" under examination as causes of "what *is* coincidentally" (K 8. 1065ᵃ6, cf. [123] p. 129); and this has generated the suggestion ([7] 453. 12–13) that the chapter's business is to prove Aristotle's statement in E 2. 1027ᵃ7–8 that "of things that are or are coming to be coincidentally the cause is also coincidentally". According to Sorabji however, "the promise made at the beginning" of the chapter is "to show that accidents can serve as causes" ([112] p. 9); while Williams ([126] p. 183) sees "the chapter as a whole [as] concerned to refute" causal determinism, i.e. "every event is determined by some prior cause." These judgements share, if little else, an urge to play down the notion of *taking time to come or cease to be*. Yet the chapter's thesis appears to embody that notion.

This difficulty in discerning a purpose for E 3 has helped to motivate several different interpretations on which I now comment.

First, some have pointed out that (b) is what makes (a) hard to sustain, and, they say, (b) is not Aristotelian ([124]). But I stick by the claim in the Notes that (b) is present in this chapter, however successful Aristotle may have been in resisting its seductions elsewhere in his works (see e.g. [112] ch. 2).

Secondly, (e) is a hypothesis of uncertain status, introduced by 'if' but expressing no mood because containing no finite verb. Instead of assum-ing, as the Notes do, that Aristotle endorses it ('if, as surely is the case'), we might therefore construe it as a consequence of rejecting the chapter's thesis ('if, as would then be the case'), yielding the structure: otherwise (e) would follow, and determinism in the sense of denying (a) would follow from that (see [123]). Of the two inferences thereby separated, the second comes easily via (b1), if (e) amounts to saying that everything (interesting) has some antecedent cause; but it is quite unclear how this, asserting the existence of causes, could be imagined to follow from *rejection* of the chapter's thesis, which itself asserts the existence of certain kinds of cause.

Thirdly, then, we might follow Williams [126] in denying that the

chapter deals with the notion of taking time or being in process. Williams' assault on this tradition (a tradition also affecting e.g. *Metaphysics Z* 15. 1039^{b}23–4, *H* 3. 1043^{b}14–16) is in three movements. (1) He is able, as we have seen, to offer an attractive alternative in *E* 2. 1026^{b}21–4. (2) Hypothesis (*e*), if Aristotle endorses it, must somehow restrict the things that have a cause, since (*a*) and (*b*1) together entail that not all do. But the restriction need not be, as (*e*) assumes, to things that take time in coming or ceasing to be; for Aristotle's word order allows or even favours a different translation, which puts "non-coincidentally" with the subject, giving

> (*e*4) everything that comes and ceases to be non-coincidentally has a cause

(what these things are that come and cease to be non-coincidentally we do not know, but possibly the same as *E* 2's items that come and cease to *be*, speaking baldly). (3) If (*e*) in the form of (*e*4) were still to join with (*a*) and (*b*1) in proving Aristotle's thesis in the chapter by the route so far defended, that thesis must now assert that some causes come and cease to be only *coincidentally*. Williams' reading of the chapter's first sentence is not this, however, but, in effect, 'some causes come and cease to be'. Stressing the "able" in my translation of the Greek adjectives 'able-to-come-to-be' and 'able-to-be-destroyed', a feature which need not be read into their meaning and which the Notes in the event ignore, Williams takes the sentence to assert that there are causes which, at some times, are merely potential and not actualized. Aristotle's route to the chapter's thesis, so understood, will now be as follows: otherwise, since everything is necessary from the time it happens, all causes would be necessary at all times, whence by (*b*) everything caused would be necessary at all times, whence by (*e*4) everything that comes to be non-coincidentally would be necessary at all times, which, if still not exactly the determinism that Aristotle claims to extract, is once more close enough to it to be thoroughly embarrassing.

What, then, is the message of the chapter? (*b*1) commits Aristotle to the view that there are times when contingencies—I mean, whatever is not always necessary—do not yet have causal ancestors; and (*a*) commits him to the existence of contingencies. Thus although a contingency is not debarred from having a cause or a chain of causes, nevertheless because every cause acquires necessity at the time it occurs, and at the same time, by (*b*1), transmits that necessity to its future descendants, any chain leading to a contingency must have a first member, itself uncaused, and the first member (like the others) must at some earlier time have been potential but not actual, i.e. must have come to be. Moreover, if (*e*4) is right, all uncaused things that come and cease to be must do so coincidentally; so contingencies, if caused at all, must have as their first

cause something that comes and ceases to be coincidentally. Pseudo-Alexander's discussion of the example of thirst leading to violent death in Aristotle's second paragraph alludes to one Nicostratus who fell into enemy hands when he went out of town to get a drink ([7] 454. 35–8). It may be right to use this as grounds for imputing to *E* 3 itself the view that only chance happenings like the encounter with enemy soldiers can be the first causes of contingent outcomes, and that the thinker who traced Nicostratus' death back to a decision to eat salty food is presented by Aristotle as mistaken. Coincidental *causes* play no part in the argument so interpreted, although it is doubtless tempting to concede on Aristotle's behalf that Nicostratus' decision to eat salty food did cause his death in a way, viz. coincidentally, in the sense that it caused something, his presence outside the town, which by coincidence with something else caused his death. All this deserves the comment, however, that if it is Aristotle's view, he needs to ponder further; for *some* events *can* be traced back to an agent's earlier decision to bring them about, yet these events are contingent too (see [112] pp. 228–9, 238)—indeed they are not necessary even after the time of the decision which causes them, contrary to (*b*). There are objections of a different kind in [125] pp. 314–16.

In any case I incline to agree with those commentators who say that the main lesson of the chapter is that *uncaused causes must exist,* if there is to be an escape from determinism: "it [*sc.* the causal ancestry of the specimen death] runs as far as some origin, but this no further to anything else" ($1027^b 11$–12). The thesis of the chapter will embody this result if "origin" in it means 'uncaused cause'. To be sure, the thesis goes further, in its obscure characterization of these origins. We wish the characterization either to make them impermanent, having their own coming (and ceasing) to be, or, in particular, to make them things that come and cease to be coincidentally; and perhaps it can be interpreted so as to import one or both of those features. At any rate, the former at least of them is in fact, on Aristotle's assumptions in the chapter, part of the price of escape.

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[2] W. D. Ross (ed.), *Aristotle's Metaphysics*, Clarendon Press, Oxford, 1st edn. 1924, corrected 1953.

Ross himself translated the *Metaphysics* in vol. viii (2nd edn. 1928) of:

[3] J. A. Smith and W. D. Ross (edd.), *The Works of Aristotle translated into English*, Clarendon Press, Oxford, 1910–52.

Ross's translation is reissued with revisions in vol. ii of:

[4] J. Barnes (ed.), *The Complete Works of Aristotle*, Princeton University Press, Princeton, 1984.

Although Ross has not been superseded, a good alternative translation is:

[5] H. G. Apostle, *Aristotle's Metaphysics*, trans. with commentaries and glossary, Indiana University Press, Bloomington and London, 1966.

COMMENTARIES

The ancient commentators on these books are edited in:

[6] *Commentaria in Aristotelem Graeca*, Reimer, Berlin, 1882–1909,

which contains:

[7] Alexander of Aphrodisias (AD *c.* 200), *In Aristotelis Metaphysica Commentaria*, ed. M. Hayduck, [6] vol. i, 1891;

[8] Asclepius (AD 6th cent.), *In Aristotelis Metaphysicorum Libros A–Z Commentaria*, ed. M. Hayduck, [6] vol. vi.2, 1888;

[9] Syrianus (d. AD 437), *In Aristotelis Metaphysica Commentaria*, ed. J. Kroll, [6] vol. vi.1, 1902.

Translations into English of the portions of Alexander's commentary on Γ and Δ are in progress under the editorship of R. R. K. Sorabji. Translations of [8] and [9] are planned in the same series.

The commentary of Thomas Aquinas (*c.*1225–74) is available in:

[10] Aquinas, *In xii Libros Metaphysicorum Aristotelis Expositio*, ed. M.-R. Cathala and R. M. Spiazzi, Marietti, Turin, 1950;

and is translated as:

[11] Aquinas, *Commentary on the Metaphysics of Aristotle*, trans. J. P. Rowan, Henry Regnery Co., Chicago, 1961.

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[12] B. Cassin and M. Narcy, *La décision du sens: le livre Gamma de la Métaphysique d'Aristote: introduction, texte, traduction et commentaire*, Vrin, Paris, 1989.

There is relevant material in some other volumes of the Clarendon Aristotle Series:

[13] J. L. Ackrill, *Aristotle's Categories and De Interpretatione*, trans. with notes, Clarendon Press, Oxford, 1963;

[14] D. W. Hamlyn, *Aristotle's De Anima Books II and III*, trans. with introduction and notes, 1968, reissued with additional material by C. Shields 1993;

[15] W. Charlton, *Aristotle's Physics Books I and II*, trans. with introduction and notes, 1970, reissued with additional material 1992;

[16] J. Barnes, *Aristotle's Posterior Analytics*, trans. with notes, 1975, 2nd edn. 1993;

[17] J. E. Annas, *Aristotle's Metaphysics Books M and N*, trans. with introduction and notes, 1976;

[18] C. J. F. Williams, *Aristotle's De Generatione et Corruptione*, trans. with notes, 1982;

[19] E. L. Hussey, *Aristotle's Physics Books III and IV*, trans. with introduction and notes, 1983;

[20] D. Bostock, *Aristotle's Metaphysics Books Z and H*, trans. with introduction and commentary, forthcoming.

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[21] J. L. Ackrill, *Aristotle the Philosopher*, Oxford University Press, Oxford, 1981;

[22] J. Barnes, *Aristotle*, Past Masters, Oxford University Press, Oxford, 1982.

An older book is:

[23] W. D. Ross, *Aristotle*, Methuen, London, 5th edn. 1949.

Indispensable for the student of Aristotle who has Greek:

[24] H. Bonitz, *Index Aristotelicus*, Berlin, 1870, reissued Darmstadt, 1955.

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Collections containing important articles which bear on $\Gamma\Delta E$ include:

[25] J. Barnes, M. Schofield, and R. R. K. Sorabji (edd.), *Articles on Aristotle*, i. *Science*, Duckworth, London, 1975;

[26] J. Barnes, M. Schofield, and R. R. K. Sorabji (edd.), *Articles on Aristotle*, iii. *Metaphysics*, Duckworth, London, 1979;

[27] D. J. O'Meara (ed.), *Studies in Aristotle*, Catholic University of America Press, Washington DC, 1981;

[28] M. Schofield and M. C. Nussbaum (edd.), *Language and Logos*, Cambridge University Press, Cambridge, 1982;

[29] F. J. Pelletier and J. King-Farlow (edd.), *New Essays on Aristotle*, *Canadian Journal of Philosophy*, suppl. vol. x, University of Calgary Press, Calgary, 1984;

[30] J. Wiesner (ed.), *Aristoteles: Werk und Wirkung*, i. *Aristoteles und seine Schule*, de Gruyter, Berlin and New York, 1985;

[31] G. E. L. Owen, *Logic, Science and Dialectic*, Duckworth, London, 1986;

[32] M. Frede, *Essays in Ancient Philosophy*, Clarendon Press, Oxford, 1987;

[33] R. L. Judson (ed.), *Aristotle's Physics: A Collection of Essays*, Clarendon Press, Oxford, 1991.

THE NATURE AND SCOPE OF METAPHYSICS

On the nature of Aristotelian metaphysics see:

[34] P. Merlan, 'On the Terms "Metaphysics" and "Being-qua-being"',

The Monist lii, 1968, pp. 174–94; repr. in his *Kleine philosophische Schriften*, Hildesheim, 1976, pp. 238–58;

[35] C. H. Kahn, 'On the Intended Interpretation of Aristotle's Metaphysics', in [30];

[36] A. Code, 'Metaphysics and Logic', in M. Matthen (ed.), *Aristotle Today: Essays on Aristotle's Ideal of Science*, Academic Printing and Publishing, Edmonton, 1987.

The status of metaphysics as a 'science' ("discipline") is examined in:

[37] T. H. Irwin, 'Aristotle's Discovery of Metaphysics', *Review of Metaphysics* xxxi, 1977–8, pp. 210–29,

and further in ch. 8 of:

[38] T. H. Irwin, *Aristotle's First Principles*, Clarendon Press, Oxford, 1988.

Irwin's [37] led to:

[39] A. Code, 'Aristotle's Investigation of a Basic Logical Principle: Which Science Investigates the Principle of Non-Contradiction?', *Canadian Journal of Philosophy* xvi, 1986, pp. 341–57;

[40] S. M. Cohen, 'Aristotle on the Principle of Non-Contradiction', *Canadian Journal of Philosophy* xvi, 1986, pp. 359–70;

[41] M. Furth, 'A Note on Aristotle's Principle of Non-Contradiction', *Canadian Journal of Philosophy* xvi, 1986, pp. 371–81.

Recent debate on interpreting 'being *qua* being' can be followed in [34] and:

[42] J. Owens, *The Doctrine of Being in the Aristotelian 'Metaphysics': A Study in the Greek Background of Mediaeval Thought*, Pontifical Institute of Mediaeval Studies, Toronto, 1951, 2nd edn. revised 1963;

[43] P. Merlan, " Ὂν ᾗ ὄν und πρώτη οὐσία: Postskript zu einer Besprechung", *Philosophische Rundschau* vii, 1959, pp. 148–53;

[44] G. Patzig, 'Theologie und Ontologie in der "Metaphysik" des Aristoteles', *Kant-Studien* lii, 1960–1, pp. 185–205; trans. J. M. and J. Barnes as 'Theology and Ontology in Aristotle's *Metaphysics*', with postscript, in [26];

[45] W. Leszl, *Aristotle's Conception of Ontology*, Antenore, Padua, 1975;

[46] J. G. Stevenson, 'Being *qua* Being', *Apeiron* ix, 1975, pp. 42–50;

[47] K. Brinkmann, *Aristoteles   Allgemeine und Spezielle Metaphysik*, de Gruyter, Berlin, 1979;

[48] G. Reale, *The Concept of First Philosophy and the Unity of the Metaphysics of Aristotle*, trans. J. R. Catan, SUNY Press, Albany, 1980;

[49] J. Owens, 'Is there Any Ontology in Aristotle?', *Dialogue* xxv, 1986, pp. 697–707;

[50] M. Frede, 'The Unity of General and Special Metaphysics: Aristotle's Conception of Metaphysics ', in [32], pp. 81–95;

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[51] J. W. Thorp, 'Does Primacy Confer Universality: Logic and Theology in Aristotle', *Apeiron* xxii, 1989, pp. 101–25.

THE THINGS-THAT-ARE AND THEIR
INTERRELATIONS

Important contributions to understanding Aristotle's metaphysical views in Γ are contained in:

[52] G. E. L. Owen, 'Logic and Metaphysics in Some Earlier Works of Aristotle', in I. Düring and G. E. L. Owen (edd.), *Aristotle and Plato in the Mid-fourth Century*, Göteborg, 1960; repr. in [26] and [31];

[53] G. E. L. Owen, 'Aristotle on the Snares of Ontology', in R. Bambrough (ed.), *New Essays on Plato and Aristotle*, Routledge & Kegan Paul, 1965; repr. in [31];

[54] G. E. L. Owen, 'The Platonism of Aristotle', *Proceedings of the British Academy* li, 1965; repr. in P. F. Strawson (ed.), *Studies in the Philosophy of Thought and Action*, Oxford University Press, Oxford, 1968, and in [25] and [31];

and developed in:

[55] C. H. Kahn, 'Why Existence does not Emerge as a Distinct Concept in Greek Philosophy', *Archiv für Geschichte der Philosophie* lviii, 1976, pp. 323–34;

[56] M. T. Ferejohn, 'Aristotle on Focal Meaning and the Unity of Science', *Phronesis* xxv, 1980, pp. 117–28;

[57] R. M. Dancy, 'On Some of Aristotle's First Thoughts about Substances', *Philosophical Review* lxxxiv, 1975, pp. 338–73.

Some foundations had been laid in the presumably earlier *Categories* and *De Interpretatione*, on which see [13]. For the linguistic background as seen by a philosopher:

[58] C. H. Kahn, *The Verb 'Be' in Ancient Greek*, part vi of J. W. M. Verhaar (ed.), *The Verb 'Be' and its Synonyms*, Reidel, Dordrecht, 1973.

On the several senses of 'being':

[59] F. Brentano, *Von der mannigfachen Bedeutung des Seienden nach Aristoteles*, Freiburg, 1862, trans. R. George as *On the Several Senses of Being in Aristotle*, University of California Press, Berkeley and Los Angeles, 1975;

[60] M. J. Loux, 'Aristotle on the Transcendentals', *Phronesis* xviii, 1973, pp. 225–39;

[61] D. W. Hamlyn, 'Focal Meaning', *Proceedings of the Aristotelian Society* lxxviii, 1977–8, pp. 1–18;

[62] M. Matthen, 'Aristotle's Semantics and a Puzzle concerning Change', in [29];

[63] D. R. Morrison, 'The Evidence for Degrees of Being in Aristotle', *Classical Quarterly* xxxvii, 1987, pp. 382–401;

[64] H. P. Grice, 'Aristotle on the Multiplicity of Being', *Pacific Philosophical Quarterly* lxix, 1988, pp. 175–200,

the last marred by annoying misprints. More generally on Aristotelian homonymy:

[65] K. J. J. Hintikka, 'Aristotle and the Ambiguity of Ambiguity', *Inquiry* ii, 1959, pp. 137–51; repr. with revisions as ch. 1 of his *Time and Necessity: Studies in Aristotle's Theory of Modality*, Oxford University Press, Oxford, 1973;

[66] T. H. Irwin, 'Homonymy in Aristotle', *Review of Metaphysics* xxxiv, 1980–1, pp. 523–44.

Different views of $\varDelta$ 7, especially 1017^{a}22–30, are put forward in:

[67] R. A. Cobb, 'The Present Progressive Periphrasis and the Metaphysics of Aristotle', *Phronesis* xviii, 1973, pp. 80–90;

[68] R. K. Sprague, 'Aristotelian Periphrasis: A Reply to Mr Cobb', *Phronesis* xx, 1975, pp. 75–6;

[69] J. W. Thorp, 'Aristotle's Use of Categories', *Phronesis* xix, 1974, pp. 238–56;

[70] M. Frede, 'Categories in Aristotle', in [27], pp. 1–24, repr. in [32], pp. 29–48: see pp. 15–19 (41–4);

[71] R. M. Dancy, 'Aristotle and Existence', *Synthese* liv, 1983, pp. 409–42.

See also [64] pp. 180–1, and compare *De Generatione et Corruptione* I 3–4 and the notes ad loc. in [18].

On being as truth ($\varDelta$ 7. 1017^{a}31–5 and E 4) see:

[72] M. Matthen, 'Greek Ontology and the "Is" of Truth', *Phronesis* xxviii, 1983, pp. 113–35;

[73] J. W. Thorp, 'Aristotle on Being and Truth', *De Philosophia* iii, 1982, pp. 1–9.

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but see the notes on 73ᵃ24 ff. and 83ᵇ37 ff. in [16], and the dissent in:

[75] A. Code, 'On the Origins of Some Aristotelian Theses about Predication', in J. Bogen and J. E. McGuire (edd.), *How Things Are: Studies in Predication and the History of Philosophy and Science*, Reidel, Dordrecht, 1985;

[76] H. Weidemann, 'In Defence of Aristotle's Theory of Predication', *Phronesis* xxv, 1980, pp. 76–87.

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[80] L. Brown, 'Being in the *Sophist*: a Syntactical Inquiry', *Oxford Studies in Ancient Philosophy* iv, 1986, pp. 49–70.

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On *Γ* 3 see the group of articles [37], [39]–[41], and from an earlier date:

[82] J. Barnes, 'The Law of Contradiction', *Philosophical Quarterly* xix, 1969, pp. 302–9,

which is criticized in:

[83] J. Nuttall, 'Belief, Opacity and Contradiction', *Philosophical Quarterly* xxviii, 1978, pp. 253–8.

The 'type 2' interpretation was put forward by Anscombe in:

[84] G. E. M. Anscombe and P. T. Geach, *Three Philosophers*, Blackwell, Oxford, 1961, pp. 39–45.

For a careful and sensitive treatment of *Γ* 4. 1005ᵇ11–1007ᵇ18, with text and translation, see:

[85] R. M. Dancy, *Sense and Contradiction*, Reidel, Dordrecht, 1975.

The same passage is also examined in [36], [38] ch. 9, and:

[86] H. W. Noonan, 'An Argument of Aristotle on Non-Contradiction', *Analysis* xxxvii, 1976–7, pp. 163–9; repr. in *The Philosopher's Annual*, vol. ii, Blackwell, Oxford, 1978, pp. 107–15;

[87] J. Lear, *Aristotle and Logical Theory*, Cambridge University Press, Cambridge, 1980, ch. 6;

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SCEPTICISM AND RELATIVISM

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[92] J. D. G. Evans, 'Aristotle on Relativism,' *Philosophical Quarterly* xxiv, 1974, pp. 193–203;

[93] A. J. P. Kenny, 'The Argument from Illusion in Aristotle's *Metaphysics* (Γ 1009–10)', *Mind* lxxvi, 1967, pp. 184–97,

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[94] M. C. Scholar, 'Aristotle *Metaphysics* IV 1010^{b}1–3', *Mind* lxxx, 1971, pp. 266–8.

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[95] K. Lycos, 'Aristotle and Plato on "Appearing"', *Mind* lxxiii, 1964, pp. 496–514.

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[96] E. Berti, 'La critica allo Scetticismo nel IV Libro della *Metafisica*', in G. Giannantoni (ed.), *Lo Scetticismo antico*, Bibliopolis, Naples, 1981, vol. i, pp. 61–79;

and Aristotle's influence on later Greek scepticism is traced in:

[97] A. A. Long, 'Aristotle and the History of Greek Scepticism', in [27].

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NUMBER, UNITY, IDENTITY

On numbering:

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[100] K. R. Popper, 'The Principle of Individuation', *Proceedings of the Aristotelian Society*, suppl. vol. xxvii, 1953, pp. 97–120.

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[102] F. D. Miller, Jr., 'Did Aristotle Have the Concept of Identity?', *Philosophical Review* lxxxii, 1973, pp. 483–90;
[103] A. Code, 'Aristotle's Response to Quine's Objections to Modal Logic', *Journal of Philosophical Logic* v, 1976, pp. 159–86;
[104] G. B. Matthews, 'Accidental Unities', in [28];

to which useful background is:

[105] R. Cartwright, 'Identity and Substitutivity', in M. K. Munitz (ed.), *Identity and Individuation*, New York University Press, New York, 1971; repr. in his *Philosophical Essays*, MIT Press, Cambridge, Mass., 1987,

and [57] pp. 361–8. Russell is recruited against the imputation in:

[106] C. J. F. Williams, 'Aristotle's Theory of Descriptions', *Philosophical Review* xciv, 1985, pp. 63–80,

and to similar purpose the distinction in [105] is invoked in:

[107] F. J. Pelletier, 'Sameness and Referential Opacity in Aristotle', *Noûs* xiii, 1979, pp. 283–311;
[108] I. Angelelli, 'Friends and Opponents of the Substitutivity of Identicals in the History of Logic', in M. Schirn (ed.), *Studien zu Frege*,

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[109] F. A. Lewis, 'Accidental Sameness in Aristotle', *Philosophical Studies* xlii, 1982, pp. 1–36.

Close textual analysis is deployed against the imputation in:

[110] M. Mignucci, 'Puzzles about Identity: Aristotle and his Greek Commentators', in [30].

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[111] L. Spellman, 'Referential Opacity in Aristotle', *History of Philosophy Quarterly* vii, 1990, pp. 17–32.

CAUSATION, NECESSITY, COINCIDENCE

On *Δ* 2 see the parallel notes in [15], and on Aristotelian causation more generally:

[112] R. R. K. Sorabji, *Necessity, Cause and Blame: Perspectives on Aristotle's Theory*, Duckworth, London, 1980, esp. ch. 2;

[113] D. O. M. Charles, *Aristotle's Philosophy of Action*, Duckworth, 1984, esp. pp. 44–55;

[114] M. J. White, 'Causes as Necessary Conditions: Aristotle, Alexander of Aphrodisias and J. L. Mackie', in [29], pp. 157–89;

[115] J. M. E. Moravcsik, 'What Makes Reality Intelligible? Reflections on Aristotle's Theory of *Aitia*', in [33], pp. 31–47;

[116] C. A. Freeland, 'Accidental Causes and Real Explanations', in [33], pp. 49–72.

On Aristotle's treatment of coincidence in the *Topics*, see:

[117] T. Ebert, 'Aristotelischer und traditioneller Akzidenzbegriff', in G. Patzig, E. Scheibe, and W. Wieland (edd.), *Logik, Ethik, Theorie der Geisteswissenschaften*, Felix Meiner Verlag, Hamburg, 1977;

and on *Δ* 30. 1025ᵃ30:

[118] J. E. Tiles, 'Why the Triangle has Two Right Angles *Kath' Hauto*', *Phronesis* xxviii, 1983, pp. 1–16.

On *E* 2 see [16] p. 127, and:

[119] M. Mignucci, "ʿΩς ἐπὶ τὸ πολύ et nécessaire dans la conception

aristotélicienne de la science", in E. Berti (ed.), *Aristotle on Science: The Posterior Analytics*, Antenore, Padua, 1981;

[120] R. L. Judson, 'Chance and "always or for the most part" ', in [33], pp. 73–99.

A number of attempts have been made to understand *E* 3. Besides [112] ch. 1, and [116], see:

[121] K. J. J. Hintikka, with U. Remes and S. Knuuttila, *Aristotle on Modality and Determinism, Acta Philosophica Fennica* xxix, 1977, esp. pp. 101–17;

[122] G. Fine, 'Aristotle on Determinism: A Review of Richard Sorabji's *Necessity, Cause, and Blame*', *Philosophical Review* xc, 1981, pp. 561–79;

[123] A. Madigan, '*Metaphysics E* 3: A Modest Proposal', *Phronesis* xxix, 1984, pp. 123–36;

[124] D. Frede, 'Aristotle on the Limits of Determinism: Accidental Causes in *Metaphysics E* 3', in A. Gotthelf (ed.), *Aristotle on Nature and Living Things*, Bristol Classical Press, 1985, pp. 207–25;

[125] R. E. Heinaman, 'Aristotle on Accidents', *Journal of the History of Philosophy* xxiii, 1985, pp. 311–24;

[126] C. J. F. Williams, 'Some Comments on Aristotle *Metaphysics E* 2, 3', *Illinois Classical Studies* xi, 1986, pp. 181–92;

[127] H. Weidemann, 'Aristoteles und das Problem des kausalen Determinismus (Met. *E* 3)', *Phronesis* xxxi, 1986, pp. 27–50;

[128] P. L. Donini, *Ethos: Aristotele e il determinismo* (Culture antiche, Studi e testi 2), Edizione dell'Orso, Alessandria, 1989, ch. 2.

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[129] R. Polanski, 'Aristotle's Treatment of *ousia* in *Metaphysics* V 8', *Southern Journal of Philosophy* xxi, 1983, pp. 57–66.

On *Δ* 11 see:

[130] J. J. Cleary, *Aristotle on the Many Senses of Priority*, Southern Illinois University Press, Carbondale, 1988;

and on *Δ* 27:

[131] R. K. Sprague, 'Aristotle on Mutilation', *Syllecta Classica* 2, 1990, pp. 17–22.

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[133] C. S. Lewis, *Studies in Words*, Cambridge University Press, Cambridge, 1960;

[134] J. Locke, *Essay concerning Human Understanding*, London, 1690; ed. P. H. Nidditch, Clarendon Press, Oxford, 1975;

[135] J. Locke, *Epistola de Tolerantia*, 1689; trans. Wm. Popple as *A Letter concerning Toleration*, London, 1689; in *The Second Treatise of Civil Government, and A Letter concerning Toleration*, ed. J. W. Gough, Blackwell, Oxford, 1948.

.

GLOSSARY

ἀγνοεῖν etc.: be mistaken etc., ignorant 1010ᵇ13.

ἀεί: always, in every case.

ἀίδιος: invariable, see p. 187.

αἰσθάνεσθαι, αἰσθητός, etc.: perceive, perceptible, etc., see pp. 108, 111.

αἰτία, αἴτιος: cause, reason, see p. 124.

ἀληθής etc.: true etc.

ἀλλοίωσις etc.: modification etc., see p. 108.

ἀντικεῖσθαι etc.: be opposed, opposite, see p. 151.

ἀντιφάναι etc.: contradict etc.

ἄξιος, ἀξιοῦν: legitimate; ask (for), count.

ἁπλοῦς, ἁπλῶς: simple, baldly.

ἀποφάναι etc.: deny etc.

ἀριθμός: number (ἀριθμεῖν: reckon 1016ᵇ10; ἀριθμητός: countable 1020ª9).

ἀρχή: origin, beginning, principle, see p. 123.

ἀφαιρεῖν: subtract, remove.

βέβαιος: firm.

γίγνεσθαι, γένεσις, etc.: come to be, (process of) coming to be, etc.

γιγνώσκειν, γνωστός, etc.: recognize, be acquainted with.

γνωρίζειν, γνώριμος: understand, (make) intelligible, certain, see p. 88.

διάθεσις, διακεῖσθαι: disposition, be in a condition, see p. 170.

διάνοια etc.: thought, thinking, etc.

διαφορά etc.: difference, differentia, etc.

διορίζειν etc.: specify, distinguish.

δοκεῖν: be thought.

δόξα etc.: opinion etc.

δύνασθαι etc.: be capable, be possible, capacity, etc., have force 1011ª7; cf.

ἐνδέχεσθαι; see pp. 156, 159, 160; δυνάμει: in capacity, potentially.

εἶδος: form.

ἐκ: out of, from, made up of, see p. 173.

ἐναντίος etc.: contrary etc., see p. 152.

ἐνδέχεσθαι: be possible, admit, see p. 159; cf. δύνασθαι.

ἐνέργεια etc.: (actual) functioning etc.; ἐνεργείᾳ: actually.

ἐντελεχείᾳ: in complete reality.

ἕξις: state, possession, see pp. 170-1.

ἐπιστήμη etc.: discipline, knowledge, etc., see p. 76.

ἕτερος: other, different.

ἔχειν: possess, have, attain, be in a state, include 1026ª3, be equipped with 1005ᵇ15, 17, see p. 173.

ᾗ: qua, see p. 76.

ἠρεμία, ἠρέμησις, ἠρεμεῖν: rest, be at rest.

θεωρεῖν, θεωρητικός: study, theoretical.

ἴδιος: distinct, distinctive, special.

καθόλου: universal(ly).

καί: and, i.e.

καταφάναι etc.: affirm etc.

κατηγορεῖσθαι etc.: be predicated etc.

κινεῖν, κινεῖσθαι, etc.: (effect) change etc., move 1010ª13, 1012ᵇ35.

κύριος: fundamental, authoritative.

λέγειν: call, so call, say, state, speak of, describe, mean.

λόγος: formula, statement, thesis, argument, see pp. 92, 179.

μέρος, μόριον, etc.: part, portion, etc., see p. 174.

μεταβάλλειν etc.: alter etc., see p. 158.

μεταξύ: in the middle (of, between), between, as a means to.

νοεῖν etc.: conceive etc., see p. 199.

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νοῦς: intelligence; νοῦν ἔχειν: be sane.
οἴεσθαι: consider.
οἰκεῖος: proper, own proper.
ὅλος, ὅλως: whole, wholly, in general, see p. 175.
ὁρίζειν, ὡρισμένος, etc.: define, definite, etc.
οὐσία: substance, see pp. 147–9.
πάθος etc.: affection etc., see p. 171.
ποιεῖν: produce, do, act, make, see p. 165; ποιητικός: productive.
ποιόν, ποιότης: qualification, quality, see p. 162.
ποσόν: quantity, see p. 160.
πρᾶγμα: actual thing (subject, fact), object.
προαίρεσις etc.: decision, choice; deliberately.
πρός: relative to, with reference to, in relation to, in response to; πρός τι relative.
πρῶτος: first, primary, initial.
σημαίνειν: signify, see p. 94.
σκέπτεσθαι, σκοπεῖν, etc.: examine, investigate, etc.
σοφία: science.
στάσις etc.: keeping the same etc.
στέρησις: lack, see p. 172.
συλλογισμός etc.: reasoning, calculation, etc., see p. 87.
συμβεβηκός etc.: coincidence, coincidental, etc., see pp. 76–7.

συμπλέκειν etc.: combine etc.
συνεχής etc.: continuous etc., see pp. 136, 173.
συγκεῖσθαι, σύνθεσις, etc.: be composed, be compounded, composition, etc.
τέλειος: complete, see p. 167.
τέλος: fulfilment, final state 1016ᵃ20, see p. 167.
τέχνη, τεχνίτης: skill, man-of-skill.
τρόπος: sense, manner, see p. 122.
ὕλη: matter.
ὑπάρχειν (τινί): hold good (of something), be, be present, have reached 1021ᵇ23; ὑπάρχειν ἔν τινι, ἐνυπάρχειν τινί: be a constituent of something.
ὑποκείμενον: subject, see p. 101.
ὑπολαμβάνειν: believe.
φάναι etc.: assert etc.
φαίνεσθαι etc.: be imagined etc., evident(ly), see p. 105.
φθείρεσθαι, φθορά: be destroyed, (process of) destruction.
φρόνησις: wisdom, see p. 108.
φύσις etc.: nature etc., see p. 129; πεφυκός etc.: characteristic(ally), see p. 87.
χωριστός: separable.
ψευδής etc.: false, be in error, see pp. 104, 178.
ὡς ἐπὶ τὸ πολύ: for the most part.

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