
ARISTOTLE'S METAPHYSICS

*Translated with Commentaries
and Glossary by*

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20 We must state whether it belongs to one or to a distinct science to
 inquire into what in mathematics are called "axioms"¹ and into sub-
 stances.² It is evident that the inquiry into these belongs to one science
 and to the science of philosophy; for the axioms belong to all things and
 are not proper to some one genus apart from the others. And all men use
 25 them, since they belong to being qua being, and each genus is a being.
 However, they use them only to the extent that they need them, that is, as
 far as the genus extends, in which [genus] they use demonstrations.³ So,
 since it is clear that the axioms belong to all beings qua beings (for this
 is common to them), the investigation of these axioms belongs also to
 30 him who is to know being qua being. On account of this, no one who
 examines only a part of being, such as the geometer or the arithmetician,
 tries to say anything about them, whether they are true or not, except
 for some physicists who have done so for a good reason; for these
 thought that they alone were inquiring about the whole of nature or
 about being.⁴ But since there is a scientist who is yet above the physicist
 35 (for nature is only one genus of being), the inquiry into these axioms,
 too, should belong to him who investigates universally and about first
 1005b substances.⁵ Physics, too, is a kind of wisdom, but not the primary one.

5 The attempts of some of those who state how truth should be received
 show a lack of training in analytics; for they should have this *knowl-
 edge* before coming to the present inquiry and not inquire while learn-
 ing it.⁶ } ⊕

Clearly, then, it is the task of the philosopher, that is, of the one
 who investigates all substances⁷ insofar as they by nature come under
 his science, to examine also the principles of the syllogism. Now, it is
 fitting for him who is to have knowledge in the highest degree concern-
 10 ing each genus to be able to state the most certain principles of
 things in that genus,⁸ so that he who is to have such knowledge of being
 qua being, too, must be able to state the most certain principles of all
 things. This is the philosopher, and the most certain principle of all is
 that about which it is impossible to think falsely; for such a principle
 must be *most known*⁹ (for all men may be mistaken about things which
 15 they do not know) and be also non-hypothetical.¹⁰ For a principle which
 one must have if he is to *understand* anything is not an hypothesis; and
 that which one must know if he is to know anything must be in his
 possession for every occasion. } ✓

Clearly, then, such a principle is the most certain of all; and what
 this principle is we proceed to state. It is: "The same thing cannot at the
 20 same time both belong and not belong to the same object"¹¹ and in the

same respect";¹² and all other specifications that might be made, let them be added to meet logical objections.¹³ Indeed, this is the most certain of all principles; for it has the specification stated above. For it is impossible for anyone to believe the same thing to be and not to be,
 25 as some think Heraclitus says; for one does not necessarily believe what he says.¹⁴ If, then, contraries cannot at the same time belong to the same subject (and let the usual specifications be added also to this premise), and if the contrary of an opinion¹⁵ is the negation of that
 30 opinion, it is evident that the same person cannot at the same time believe the same object to be and not to be; for in being mistaken concerning this he would be having contrary opinions. It is because of this that all those who carry out demonstrations make reference to this as an ultimate doctrine.¹⁶ This is by nature a principle also of all the other axioms.¹⁷

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35 There are some who,¹ as we said, say that it is possible for the same thing to be and not to be and also to believe that this is so. Even many
 1006a physicists² use this language. We, on the other hand, have just posited that it is impossible to be and not to be at the same time, and through
 5 this we have shown³ that it is the most certain of all principles. Some thinkers demand a demonstration even of this principle, but they do so because they lack education; for it is a lack of education not to know of what things one should seek a demonstration and of what he should not. For, as a whole, a demonstration of everything is impossible; for the process would go on to infinity, so that even in this manner there
 10 would be no demonstration.⁴ If, then, there are some things of which one should not seek a demonstration, these thinkers could not say which of the principles has more claim to be of this kind.⁵

That the position of these thinkers is impossible can also be demonstrated by refutation, if only our opponent says something; and if he says nothing, it is ridiculous to seek an argument against one who has
 15 no argument insofar as he has no argument, for such a man qua such⁶ is indeed like a plant. Demonstration-by-refutation, I may say, differs from demonstration⁷ in this, that he who demonstrates might seem to be begging the question,⁸ but if the other party is the cause of something posited, we would have a refutation but not a demonstration.⁹ The principle for all such arguments is not to demand that our opponent say that something is or is not (for one might believe this to be a begging of the question), but that what he says should at least mean something to him as well as to another; for this is necessary, if indeed

he is to say anything. For if what he says means nothing, such a man
 could not argue either by himself or with another.¹⁰ But if he grants
 25 this, there will be a demonstration; for there will already be some-
 thing definite. But he who is the cause of something granted is not he
 who demonstrates but he who takes a stand; for while he denies argu-
 ment he listens to argument. Besides, he who has granted this has
 granted that something is true without a demonstration, so that not
 everything can be so and not so.¹¹

First, then, at least this is clearly true, that each of the expressions
 30 "to be" and "not to be" has a definite meaning; so that not everything
 can be both so and not so.¹² Again, if "a man" has one meaning, let this
 be a two-footed animal. By "has one meaning" I mean this: if "a man"
 means X, then, if something is a man, to be a man would be to be X. It
 1006b makes no difference even if one says that "a man" has many meanings,
 provided that they are definite in number; for he might use a distinct
 name for each formula—for example, if he were to say that "a man" does
 not have one meaning but many, one of which would have the formula
 "a two-footed animal", and that there are also other formulae, but defi-
 5 nite in number; for he could then posit a distinct name for each of these
 formulae. And if he did not so posit but were to say that the meanings
 of "a man" are infinite in number, it is evident that there would be no
 formula. For not to signify one thing is to signify nothing, and if names
 have no meanings, then discussion with one another, and indeed even
 10 with oneself is eliminated; for it is not possible for anyone to conceive
 of anything if he does not conceive of one thing,¹³ and if it is possible,
 he could then posit one name for this one thing.

Let a name, then, as stated in the beginning, mean something and
 have one meaning. Then it is not possible for "to be a man" to have the
 very same meaning as "not to be a man", if "a man" not only signifies
 15 something predicable of one thing but also has one meaning; for we
 do not use "having one meaning" in the sense of "predicated of one
 thing", since in such a sense "the musical" and "the white" and "the
 man" would also have one meaning, and so all of them would be
 one, for they would be synonymous.¹⁴ And "to be" and "not to be" will
 not be the same except by equivocation, just as what we call "a man"
 20 others would call "not a man."¹⁵ But the problem is not whether the
 same thing can at the same time be a man and not be a man in name, but
 whether he can be and not be so in fact. Now if the meanings of "a
 man" and "not a man" are not distinct, clearly, neither will those of "to
 be a man" and "to be not a man" be distinct; and so to be a man will be
 25 to be not a man, for they will be one.¹⁶ (For "to be one" means, as in the
 case of "a garment" and "a coat", that their formula is one.) And if they
 are one, "to be a man" and "to be not a man" will have one meaning.

30 But it was shown that they signify distinct things. Accordingly, if it is true to say "X is a man", it is necessary for X to be a biped animal, for this was what "a man" was posited as signifying; and if this is necessary, it is not possible for X not to be a biped animal (for "to be necessarily a man" means this, namely, to be impossible not to be a man). Hence it is not possible at the same time to truly say of a thing that it is a man and that it is not a man. The same argument applies to being a not-man;¹⁷ for "to be a man" and "to be a not-man" have distinct meanings, if indeed also "being white" and "being a man" have distinct meanings, for the former two terms are much more opposed, so that they must have distinct meanings.¹⁸ And if one were to say that "white" and "a man" signify one and the same thing, we shall again say just what we said earlier, that not only the opposites but all things will be one.¹⁹ And if this cannot be, what follows is what we have stated, if our opponent answers our question. But if, when asked a single question, he adds also the denials, he is not answering the question. For nothing prevents the same thing from being a man and white and a great many other things; yet when asked if it is true or not true to say that X is a man, he should give an answer with one meaning, but he should not add that X is also white and great. Besides, it is impossible to list an infinite number of accidents²⁰ anyway; so, he should either list them all or none. Similarly, even if X is a countless number of times a man and not a man,²¹ one should not, when answering the question "Is X a man?", say that X is at the same time not a man, unless he lists also all the other accidents²⁰ which belong or do not belong to X. But if he were to do this, he would not be arguing.

In general, those who say this eliminate substances and essences.²² For they must say that all things are attributes, and that the essence of being just²³ a man or an animal does not exist. For if something is to be an essence of just a man, this will not be the essence of not-man or will not be not the essence of a man, and these are indeed the negations of "the essence of a man"; for what this²⁴ signified was one thing, and this was the *substance* of something. But to signify the *substance* of something is to signify that its essence is not something else. And if the essence of being just a man were to be the essence of just being a not-man or just being not a man, it would be something else. And so these thinkers must say that there can be no such formula of anything but that everything is an attribute of a thing, for it is in this way that the *substance* of a thing is distinguished from an attribute of it;²⁵ for example, whiteness is an accident of a man, in view of the fact that he is white, but he is not just whiteness. If every thing were an attribute of something, there would be no first subject of which something would be attributively a predicate²⁶ (that is, if "an attribute" always signifies that something is



1007b attributively a predicate of a subject). Such predication, then, must go on to infinity.²⁷ But this is impossible, since not even more than two terms are combined in accidental²⁸ predication. For an accident is not an accident of an accident unless both are accidents of the same thing. I mean, for example, that the white is musical, and the musical is white, and this is so in view of the fact that both are accidents of a man. But Socrates is accidentally musical not in the sense that both Socrates and the musical are accidents of some other thing.²⁹ So, since some things are said to be accidents in the latter sense and others in the former sense, those in the latter sense (like the white in Socrates) cannot be infinite in the upward direction; for example, there can be no other accident to white Socrates, for no unity is formed out of all of them.³⁰ Nor can the white have some other accident, such as the musical; for the latter is no more an accident of the former than the former of the latter, and we have already made the distinction that some are accidents in this sense and others in the sense in which the musical is an accident of Socrates. In this last sense, the accident is not an accident of an accident, but in the other sense it is, and so it is not in every case that something will be an accident of an accident.³¹ So there will be something which signifies a substance.³² And if this is so, we have shown that contradictories cannot be predicates at the same time.

Again, if all contradictories are true at the same time about the same thing, clearly all things will be one. For the same thing will be a trireme and a wall and a man, if of anything one may truly affirm or truly deny anything, and this necessarily follows for those who use the argument of Protagoras.³³ For if it seems to someone that a man is not a trireme, it is clear that he is not a trireme; but then he is also a trireme, if indeed the contradictory is also true. And then what results is the doctrine of Anaxagoras, "All things are together"; and so no thing truly exists.³⁴ Accordingly, they seem to be speaking of the indeterminate, and although they think that they are speaking of being, they speak of not-being; for the indeterminate is potential being and not actual being. But of any thing they must assert the affirmation or the denial of every thing; for it is absurd if the denial of a thing belongs to that thing but the denial of something else not belonging to the thing does not belong to it. For example, if it is true to say of a man that he is not a man, clearly it is also true to say of him that he is not a trireme. Accordingly, if the affirmation "he is a trireme" belongs to him, so must the denial. If, however, that affirmation does not belong to him, then the denial of it will belong to him at least more than his own denial belongs to him. So, if his own denial also belongs to him, the denial "he is not a trireme" will also belong to him; and if this belongs to him, so does the affirmation "he is a trireme".³⁵

These [absurdities] then follow for those who maintain this doctrine,

5 and it also follows that it is not necessary either to affirm or to deny something. For if it is true that X is a man and not a man, it is clear that X will neither be a man nor not a man; for the latter two are the denials of the former. And if the former two are combined into one, the latter two would also be combined into one as opposed to the other.³⁶

10 Again, either the doctrine applies to all cases, and any X is both white and is not white and also a being and not a being, and likewise with the other assertions and denials, or it does not apply to all but it does to some and not to others. And if it does not apply to all, they should have stated which are the exceptions. But if it applies to all, again either (1) the denial is true if the assertion is true, and the assertion is true if the denial is true, or (2) the denial is true if the assertion is, but the assertion is not always true if the denial is. And if (2) is the case, there will be some definite and permanent nonbeing,³⁷ and the doctrine concerning it will be certain; and if nonbeing is something certain and known, the opposite assertion will be more known.³⁸ But (1) if the assertion is likewise true whenever the denial is true, then it is necessary that either (a) each is true when separately stated (for example, "X is white" is true, and again "X is not white" is true), or (b) this is not the case. And if (b) it is not true to state each separately, he who is saying these things is also not saying them, and also nothing exists. But how can nonbeing talk or think?³⁹ Also, all things will be one, as we said before,⁴⁰ and the same thing will be a man and God and a trireme and the denials of these. For if all assertions and denials are truly predicated alike of each thing, one thing will not differ from another.⁴¹ For if it does differ, to say this will be true and peculiar in this case. Similarly, (b) if each can be true whenever it can be stated separately, what we have said still follows. In addition, everyone will be speaking truly and also falsely, and the same man will admit that he is speaking falsely.⁴² It is evident at the same time that to question him is to inquire about nothing, since he is not saying anything. For he says neither that it is so [definitely], nor that it is not so [definitely], but that it is both so and not so; and again he denies both by saying that it is neither so nor not so, for otherwise there would be something definite.

35 Again, if the denial is false whenever the assertion is true, and the affirmation is false whenever the denial is true, it would not be possible truly to assert and deny the same thing at the same time. But perhaps they would say that this is just what they posit at the start.⁴³

1008b Again, if anyone believes that something is so, or that it is not so, does he believe falsely, but he who believes both does so truly? If the latter believes truly, what does it mean to say that such is the nature of things?⁴⁴ If he does not believe truly, but he believes more truly than he who believes that something is so, or that it is not so, then things in some sense do possess something; and it would be true to say that this is

so,⁴⁵ but it is not at the same time true to say that it is not so. But if one says that all speak alike falsely and truly, then such a man can neither
 10 speak nor mean anything; for he says that this is so and not so at the
same time. If he has no belief of anything but is equally thinking and
not thinking, how would he differ from a plant?⁴⁶

It is most evident that no one of those who posit this doctrine, or any-
 one else, is disposed in his actions in the same way.⁴⁷ For why does a
 15 man walk to Megara and not stay where he is with the thought that he
 is walking to Megara? And why does he not walk straight into a well
 or over a precipice, if such happens to be in his way, but appear to guard
 himself against it, with the thought that it is not equally good and not
 20 good to fall in? Clearly, then, he believes one course of action to be
 better and the opposite not better. And if this is so, then he must also
 believe one thing to be a man and another not a man, one thing to be
 sweet and another not sweet. For, when he thinks that it is better to
 25 drink water and see a man and then makes inquiries about them, he
 does not equally seek and believe everything; yet he should, if the same
 thing were alike a man and not a man. But as we said, no one who ap-
 pears to guard himself against some but not against other things be-
 lieves or acts according to such doctrine. Thus, as it seems, all men have
 30 beliefs in one way, if not about all things, at least about what is better
 and what is worse. And if it is not *knowledge* but opinion that they
 have, they should be all the more concerned about the truth, just as
 those who are sick are more concerned to be healthy than those who
 are healthy; for compared to a man with *knowledge*, a man with opinion,
 too, is not healthily disposed towards the truth.

Again, however much things may be so and not so, at least the more
 and the less are still present in the nature of things; for we should not
 35 say that both two and three are alike even, nor that both he who regards
 four to be five and he who regards one thousand to be five are alike mis-
 taken. And if they are not alike mistaken, it is clear that the first man is
 1009a less mistaken and so thinks more truly. Accordingly, if that which has
 more of something is nearer to it, there should be a truth to which the
 more true is nearer.⁴⁸ And even if there is not,⁴⁹ still there exists at least
 5 something which is more certain and more true, and this would free us
 from the unconditional doctrine which prevents a thing from being
 made definite by *thought*.

5

The saying of Protagoras, too, comes from the same doctrine, and both he and they are alike in positing that a thing must both be and not

extent that they are beings, and not qua some other thing.⁴ For this reason, both physics and mathematics should be posited as being parts of wisdom.⁵

5

35 There is a principle in things about which we cannot be mistaken
 but must always be disposed in the contrary way, that is, to think truly;
 and the principle is this, that the same object cannot at one and the same
 1062a time be and not be,¹ or admit of any other opposites in the same manner.
 And although there is no demonstration of such principles in an un-
 qualified sense, there is a demonstration against anyone who denies
 them. For it is not possible to have a syllogism of the principle² from a
 5 more convincing principle, yet if indeed one is to demonstrate it with-
 out qualification, one should have at least such a syllogism.³ But to show
 the asserter⁴ of opposites why he speaks falsely, one must obtain from
 him such a statement which is the same as "it is not possible for the
 same thing to be and not to be at one and the same time" but which
 10 does not seem to be the same; for only thus can a demonstration be
 given against the one who says that opposite assertions may be truly
 made of the same thing.

Now those who are to have a discussion with each other must also
 understand each other; for if this does not happen, how can they com-
 municate with each other? Accordingly, each name used must be known
 15 and signify something, but only one thing and not many; and if it signi-
 fies many things, it must be made evident to which one of them it
 applies. So, in saying "it is this" and also "it is not this", that which he
 says it is he denies that it is, so what a given name signifies he denies
 that it does so signify; and this is impossible. So, if indeed "it is so-and-so"
 20 signifies something, it is impossible for its contradictory to be true of
 the same thing.⁵

Again, if the name⁶ signifies something and this is truly asserted, it
 is necessary for that which is asserted to be;⁷ and if it is necessary that
 it be, it cannot at that time not be; hence, it is not possible for opposite
 assertions to be true of that same thing.

Again, if an assertion is no more true than its denial, he who calls
 25 something "a man" will be speaking no more truly than he who calls it
 "not a man".⁸ But it would seem that even in calling a man "not a horse"⁹
 one would be speaking either more truly or not less truly than if he were
 to call him "not a man";⁸ yet he will be speaking also truly if he calls him
 "a horse", for contradictory assertions are taken as alike true. Accord-
 30 ingly, the same man turns out to be a horse, or any other animal.¹⁰

Now none of the above arguments is an unqualified demonstration of

the principle in question, nevertheless they are demonstrations against those who posit contrary opinions.¹¹

Perhaps Heraclitus himself, if he were questioned in this manner, would have been quickly persuaded to admit that contradictory assertions can never be true of the same things; but as it is, he adopted this doctrine without an *understanding* of what he was saying.¹² Universally,¹³ if his statement is true, neither will this itself be true,¹⁴ namely, the statement "it is possible for the same thing to be and not to be at one and the same time". For just as, when separated, the affirmation is no more true than the denial, so the denial of the combination of these two, if the combination is taken as if a single affirmation, is no more true than that combination taken as an affirmation.¹⁵ Further, if nothing can be affirmed truly, this statement itself, namely, "nothing can be affirmed truly" would also be false.¹⁶ But if a true affirmation does exist, this would refute what is said by those who oppose such statements¹⁷ and eliminate discourse completely.

6

The saying of Protagoras is almost like the doctrines we have mentioned;¹ for he, too, said that man is the measure of all things, and this is saying none other than that what a thing is thought to be by each man is precisely what the thing is. If this happens to be the case, then it follows that the same thing both is and is not, so that it is both good and bad, and likewise with the other so-called "opposite assertions"; and this is because a thing often appears to be beautiful to some but the contrary to other people, and that which appears to each man is the measure. This *difficulty* may be solved if we examine the source of this belief. For it seems to have come to some people (a) from the doctrine of the natural philosophers, and to others (b) from the fact that not all men have the same knowledge about the same things, but that a given thing appears pleasant to some and the contrary of this to others.

Now, a view common to almost all those² who are concerned about nature is that nothing is generated from nonbeing and that everything is generated from being.³ Accordingly, since from being completely white and in no way nonwhite something is becoming not-white (and is now not-white), that which is becoming not-white does so from what must have been not-white; so, according to them, it must have been generated from nonbeing if that thing⁴ did not exist as both not-white and white. But it is not difficult to solve this *difficulty*; for we have stated in the *Physics*⁵ how things which are generated do so from nonbeing and how from being.

the sophist does so for the sake of money and reputation, or for the sake of winning an argument; the dialectician only tries to find philosophic truths from commonly accepted opinions (171b3–172b8, 100a25–101a4).

35. That which is at rest remains one and the same, but that which changes is becoming many.

36. Or, the *Finite* and the *Infinite*. These are the Pythagoreans.

37. The *Odd* is indivisible and so has unity, the *Limit* gives unity to a thing, *Friendship* unites things into one, etc. The *Even* is divisible and hence many, the *Unlimited* is infinite and hence many, *Strife* keeps things apart and hence many, etc.

38. Aristotle does not hold that all things are composed of contraries as their matter; he only argues dialectically, using commonly accepted opinions of previous philosophers to show that the study of contraries belongs to philosophy. The phrase “composed of contraries” is also used for what is between contraries, like grey, which is partly black and partly white and so composed of contraries in that sense.

39. He is referring to “being” or “unity”, which is not univocal, even if its primary sense is a substance and the other senses are related to it by being attributes of it, etc.

40. For Plato, the *One* is both universal and separate, and it is a nature in itself and not, say, like whiteness, which is an attribute of a subject (a body).

41. A geometer may investigate them qua a philosopher; or, like a dialectician, he may investigate or use them by making initial hypotheses, but then he will have hypothetical knowledge of them and not *knowledge* like that of the philosopher.

42. The whole of Book Δ is a part of the answer to this problem.

3

1. These are the logical axioms. See also Book K, Sec. 4, Comm. 1.

2. An alternative to “substances” is “*substances*”, and this alternative seems better in view of the next sentence.

3. For example, universal mathematics will use these axioms only for quantities, arithmetic only for numbers, etc. A quantity or a number is a *being*, and the axioms of being are axioms of every instance of being.

4. That is, about the whole of being or about all beings, for they thought that only physical things exist.

5. The prime mover and the other immaterial substances are meant, or at least, included. The expression “investigates universally” includes both primary beings (which are separate, whether material or immaterial) and qualified beings (attributes). Such *universal* investigation will be analogical and not univocal, for “being” is not univocal.

6. Referring to Antisthenes and other uneducated thinkers, who

demand a demonstration of everything, unaware of the fact that the very first starting points of demonstration are indemonstrable axioms and premises (72b5-35, 1006a5-8).))

7. Or, *substances*; for, qualified beings are also included.

8. For example, for physics these would be the very first principles of physics, and likewise for mathematics; and in each science, such are the axioms without which nothing can be known in that science (72a14-8).

9. Most known or knowable in its nature (or by nature) is meant, not known to us, for the latter is confused knowledge and rather of particulars.

10. If it is hypothetical, one may be mistaken about it and have no certain belief about it, and so it cannot be the most certain.

11. Lines 1005a19-b17 seem to indicate that the principle of contradiction applies to all being; but no reference is made to nonbeing. Now if "A" signifies a nonbeing, both "A is B" and "A is not B" cannot be true at the same time, and one of them must be true, as is also indicated in 16a30-3 and 16b12-5. However, the statement of the principle does not specify only being, so that the term τὸ αὐτό, which is literally translated as "the same" and which I translate as "the same object", is probably intended to signify either a being or a nonbeing. However, there is this difficulty: If "A" signifies a nonbeing, A is not one, for being and unity follow each other (1003b22-5), and so in "A is B" or "A is not B" we do not have one subject of which "B" is affirmed or denied. To say "A" has one meaning is not to say that it signifies one thing, except by hypothesis or accidentally; and it is in this hypothetical or accidental sense that we use "an object" to signify something as if it was one. Perhaps the same remarks apply to the predicate "B" in "A is B" and "A is not B".

12. This is a principle about all things, not only about thoughts as some logicians think.

13. For example, if a stone is half-way immersed in water, is it or is it not immersed in water? Part of it is and part is not, so if by "the stone" one means the whole stone, the answer is "No", and if one means a part of the stone, a specification of that part will make the answer obvious. In a way, the phrase "in the same respect" would take care of any possible specification.

14. Heraclitus himself would not have believed what he said, had he understood what he said.

15. Concerning what contrary opinions are, see 23a27-24b9. It is just as impossible for a man to have contrary opinions concerning the same thing at the same time and in the same respect as for 5 to be both odd and even. See also 1011b15-22. He considers only contrary opinions as an example, but the same applies to any contrary beliefs, or else, an alternative to "opinion" is "doctrine", since δόξα has more than one sense. ↗

16. Perhaps referring to theorems which are demonstrated by a reduction to the impossible, that is, to a situation in which A is B and is not B at the same time.

17. All other axioms assume this principle. For example, in mathematics, "the whole is greater than the part" assumes that it is impossible for the whole to be and not to be greater than the part. Thus "the whole is not greater than the part" is excluded because it is false.

4

1. Probably some Sophists, among others.

2. Heraclitus and his followers (1010a10; 1012a24, 34), Empedocles (1009b15), Anaxagoras (1009a27, b25), Democritus (1009a27, b11, 15).

3. 1005b22-32.

4. To ask for a demonstration of everything is to ask for the impossible: for, since one will ask for a demonstration of every premiss posited, the process will go on to infinity, and so no demonstration of anything is thus possible.

5. But if these thinkers posit the possibility of demonstration, they must posit as indemonstrable some principles or premises from which our principle is demonstrated; yet they posit nothing.

6. That is, qua not saying anything.

7. It is assumed, here, that a demonstration by refutation is not a species of a demonstration, although the term "demonstration" appears in the former expression.

8. To beg the question is to assume at the start as true that which one is to prove as true, or as false that which he is to prove as false.

9. For example, if X denies the truth of the proposition P but at the same time assumes its truth in his arguments, one can refute his denial by pointing out his assumption of P's truth.

10. In argument, or communication in general, the meaning of a proposition is presupposed before one can discuss or determine its truth or falsity.

11. If X grants that the proposition P has one definite meaning, then he admits that P does not both mean and not mean something; hence, though openly denying the principle of contradiction, at least in this case he assumes it (that it is impossible to be and not to be at the same time, etc.).

12. That is, both so and not so, at the same time, etc. Aristotle often omits repeating the qualifications; but they are taken as understood.

13. Knowledge of one thing is prior in time to knowledge of many things.

14. To be predicated of one thing is not the same as to have one meaning. Of Socrates we may predicate "white", "philosopher", "snub-nosed", etc.; but each of these predicates has a different meaning; but of an instance of whiteness only "whiteness" or its formula is a predicate

as its essence. If this distinction is not kept in mind, fallacies such as the following result: Socrates is a man; but Socrates is white, and being white is not being a man; hence Socrates is not a man. Also, Socrates is a man, and white, and musical, etc.; so all these, and in fact everything, is one (for if Socrates is not black, there will be something musical which is black, etc., so since Socrates is musical, he is also black). In modern parlance, connotation is distinct from denotation.

15. Terms have meaning by convention; so just as "a garment" and "a coat" may have the same meaning, so one may decide to use by convention "to be" and "not to be" with the same meaning. But the principle of contradiction is concerned with facts and not with conventions, so these two terms are posited at the start as differing in meaning.

16. Perhaps what Aristotle is doing here is to proceed from terms, differing in appearance but having the same meaning, to what would then follow: the oneness of consequent meanings; but the supposition is false, since "to be" and "not to be", followed by "a man", which has one meaning, do not have the same meaning.

17. "To be a not-man" and "not to be a man" differ. In the proposition "X is a not-man", if true, X is assumed to exist; but in "X is not a man", if true, X does not necessarily exist. The latter proposition merely denies the unity of a human X, whether X exists or not.

18. In some cases, although to be a man is not to be white, X may be both a man and white, as in the case of an individual white man; but in no case can X be both a man and a not-man, for not-man is the privation of man.

19. See above, Comm. 14.

20. An alternative to "accidents" is "attributes", since accidents are not the only attributes which may belong to a man.

21. That is, if X is a man, and also X is Y_i (where $i = 1, 2, 3, \dots$), if to be an Y_i is not to be a man, the confusion stated in Comm. 14 would lead one to say that X is not a man a countless number of times.

22. A substance, like a man, is separate; an essence, like that of whiteness, is inseparable from a body, although it may be a subject having some other attribute, as when we say that this whiteness is brilliant. If substances and essences are denied, no science is possible; for "A is not A" would be true of anything.

23. The word "just" probably modifies a substance, but not any *substance* or essence; what is just a substance is not an attribute of something else, as in the case of Socrates.

24. Refers to "the essence of a man".

25. In other words, a man is a subject, and he has necessary attributes, such as mortality, and also accidental attributes, such as sickness. But this distinction is lost if essences are denied; for one would then say alike truly that a man is not mortal and also that he is not sick.

26. An alternative: "there would be no subject of which something

would be universally a predicate. For example, "mortality" or "animality" would not be always a predicate of a man, or "oddness" of five. Greek texts differ.

27. If everything is present in something else, there is no substance (which is separate and so not present in anything).

28. An alternative to "accidental" is "attributive", and likewise for the term "accident" which follows repeatedly.

29. 1017a7-22.

30. That is, B is an accident of subject A, C is an accident of B, D is an accident of C, etc. Accidents do not necessarily form a unity, for they can exist apart from each other, though in substances.

31. Whiteness is an accident of Socrates by being present (although it need not be) in Socrates; but the musical is an accident of the white by the fact that both are present in the same subject, say, Socrates. So in both cases, a subject is presupposed.

32. For example, it is a term, such as "a man", that signifies a substance, but it is the thing itself, the man, who is a substance.

33. Namely, that what seems to a man to be true, this is true; and since contradictories, and contraries, etc., seem to different persons to be true of a subject, all things would be true of it.

34. That is, no thing exists actually by itself, for all things are blended into something indefinite or indeterminate.

35. The argument may also be stated thus: Since to say "a man is a man" is more true than to say "a man is a trireme", then since "a man is not a man" is more opposite than "a man is a trireme", if "a man is not a man" is true, then certainly "a man is a trireme" is true. And if "a man is not a man" is true, even if to be a man belongs to a man, then certainly "a man is not a trireme" is true, since trireme does not even belong to a man.

36. If these thinkers allow as true instances of both "A is B" and "A is not B" to be true, even the principle of the excluded middle (either p or not p) may be denied; for p may be denied, not p may be denied, and the combination (p and not p, or, p or not p) may be denied.

37. That is, there will be some permanent nonbeing in these cases in which the denial is true but not the assertion. For example, if "A is not B" is true but "A is B" is not true, then AB will be permanently a nonbeing, as in the case of an odd eight.

38. It is not clear to which opposite assertion he is referring. If, from (2), for any A and B, "A is B" is true and implies the truth of "A is not B", but the truth of "A is not B" does not always imply that of "A is B", then we have a contradiction; for if, for some A_1 and B_1 , " A_1 is not B_1 " is true but " A_1 is B_1 " is not, this contradicts the initial assumption that "A is B" is true for any A and B.

Perhaps by "more known" he means more *understood*; for "nonbeing" is *understood* through "being", and "A is not B" presupposes "A is B" for

its *understanding* (86b30-6), just as "A does not exist" presupposes for its *understanding* "A exists". And if one thing is more *understood* than another, this is definite, so not everything is so and not so.

39. That is, if X_1 is saying these things, he is also not saying them. Moreover, X (universally taken) both exists and does not exist, and so X_1 both exists and does not exist. And if X_1 does not exist, how can he talk or think?

40. 1006b15-7, 1007a4-7.

41. That is, if for any X and Y we can say that it is a Z and it is not a Z, for every Z, then X and Y and all the rest, having the same predicates, will be the same.

42. That is, if A is speaking truly, and also not truly, then he is speaking falsely, for not to speak truly is to speak falsely; or else he admits as true the fact that he speaks falsely.

43. Namely, that they posit as a principle both the assertion and the denial, so to use a contrary principle is to pit a principle against a principle and not to disprove one by means of the other.

44. How can a thing have a nature if that nature is also denied of it?

45. Namely, that something is definitely more true than something else. But these thinkers would even attach to this its denial, for they would rather believe the two joined together than any of the two separately.

46. For, according to them, both a man and a plant alike think and do not think.

47. Aristotle now attacks the doctrine by showing that these thinkers do not behave in accordance with it. Thus, by behaving in one way rather than in another, they definitely believe the former to be better than the latter; and if they talk to a man but not to a stone, they definitely believe the former to be a man, but not the latter. But behavior in one or a definite way usually follows belief in one or a definite way. So, not everything is believed to be so and not so.

48. If A is nearer to C than B is to C, then C must exist if A is to be nearer to it. For example, if A's distance from C is less than B's is, then C must exist.

49. There may be a doubt in some cases. If A is whiter than B, or more just than B, does perfect whiteness or justice exist? It may be possible for it to exist, or it may exist in thought or as a definition.

5

1. For Protagoras, man is the measure of things; so what appears to a man to be is what actually exists.

2. That is, relatively to those who have opposite opinions.

3. That is, if being cannot be generated from nonbeing. Thus, if a man is now healthy and now sick, and if each cannot come from non-being, both health and sickness, and likewise for other contraries, must be in the man.

sumes them. No mention is made here, as is made later and elsewhere (74a17-25, 1026a25-7, 1064b8-9), about universal mathematics. Universal axioms concerning quantities would seem to be like universal axioms concerning movable objects in physics, and so universal mathematics and universal physics would seem to be alike parts of wisdom or of philosophy (1061b32-3).

3. Numbers qua numbers are a part of being, but it is not clear here whether by "a part of being" he includes quantities as such, although one sense of "being" is quantity. Anyway, if by "attributes" here he means the properties demonstrated for all quantities, then certainly these are the concern of the universal mathematician and not of the philosopher.

4. That is, not qua in motion or qua having some specific nature.

5. By "parts of wisdom" here he probably means what is specific, as against what is generic, not in the sense that the objects of physics and mathematics are investigated by first philosophy, except for their principles. Scientifically, the study of the more generic should precede that of the less generic.

5

1. The proposition "A is" is to be taken in a generic sense so as to include qualified as well as unqualified existence. Thus "Socrates is white" signifies a qualified existence or predication, but "Socrates exists" an unqualified one. Similarly for "A is not".

2. This principle, qua a principle, cannot be demonstrated, and qua the most known by nature and the most certain, it cannot depend on a prior principle. ✓

3. Lines 1062a2-5 correspond to lines 1006a5-18.

4. Lines 1062a5-20 correspond to lines 1006a18-1007a20.

5. He who asserts the opposites of any thing would find it impossible to restrict a term to one meaning, for he will assert and deny that meaning at the same time; so discourse with him would be impossible (1006a31-b10). }

6. Perhaps by "name" he means any expression, even a proposition.

7. Lines 1062a20-3 leave much to be supplied; they may correspond to lines 1006b11-34. Whether "necessary" applies to the fact signified, like the incommensurability of the diagonal of a square with its side, or to the necessity that a fact be signified when the corresponding true proposition is made, is not clear from what little is said; perhaps the latter.

8. An alternative to "not a man" is "a not-man".

9. An alternative to "not a horse" is "a not-horse".

10. Lines 1062a23-30 correspond to 1007b18-1008a2. Dialectically, "not a horse" is a truer predicate of a man than "not a man" is; and if so, then "a horse" should be a less true predicate of him than "a man". But for these thinkers "a horse" and "not a horse" are alike true predicates

of him; and so he who allows contradictories to be simultaneously true turns out to be a horse, and likewise stupid, and the like.

11. The point in these qualified demonstrations seems to be this: to draw the opponent into a position of saying something but denying its opposite, thus showing him that he does not really believe that contradictories are simultaneously true.

12. Lines 1062a31-5 somewhat correspond to lines 1005b23-6.

13. Lines 1062a36-b7 correspond to lines 1008a4-7, and 1062b7-9 to 1012b11-8.

14. In other words, if "it is possible for A to be and not to be . . ." is true, it is also false. Aristotle here equates the falsity of "it is possible . . ." to the truth of the statement "it is not possible . . .".

15. For example, just as "A is B" is no more true than "A is not B", so "it is not the case that A is B and also not B" is no more true than "it is the case that A is B and also not B".

16. From the doctrine which makes all contradictories or all propositions true, he now turns to the one making them all false. But this doctrine, if true, would make itself false (a case of theory of types here).

17. That is, true statements which are not also false, or false statements which are not also true.

6

1. Lines 1062b12-24 correspond to lines 1009a6-16, 22-30.

2. 187a20-b7. Anaxagoras, Democritus, etc.

3. Lines 1062b24-33 correspond somewhat to lines 1009a30-8.

4. That is, if the subject did not have both the not-white and the white prior to the change into the not-white, this not-white would be generated out of nothing or nonbeing; and this goes against their hypothesis that being is not generated from nonbeing.

5. 189a11-192b4.

6. Lines 1062b33-1063a10 correspond mainly to lines 1010b1-26.

7. Lines 1063a10-7 correspond to lines 1010a25-32.

8. Perhaps *γενέσθαι* is better than *γίγνεσθαι*.

9. For example, there is Socrates, the subject, and also health and sickness, the two contraries. If the motion is to a sick Socrates, Socrates must be first in health, not just be Socrates without health, then in some intermediate state, and finally in sickness. So these three stages of Socrates must differ if there is to be motion. But if contradictories were alike true of them, they would be the same, and then even motion would disappear.

10. 261a31-b26.

11. That is, a composite substance (matter and form) exists in actuality because of its form or differentia (1020a33-b1), which is definite, not because of any specific quantity of it, as this is often changing.

12. Lines 1063a22-8 correspond to lines 1010a22-5.

13. Lines 1063a28-35 correspond to lines 1008b12-27.