

Non-Contradiction and Substantial Predication

by

M.J. CRESSWELL

Centre for Logic, Language and Computation, Victoria University of Wellington
and Department of Philosophy, Texas A&M University

Abstract In Book Γ of the *Metaphysics* Aristotle states and attempts to prove what he calls the basic principle of the science of being as being: the law of non-contradiction. In this paper I defend an interpretation of his proof, inspired by Elizabeth Anscombe's 1961 essay in 'Three Philosophers', though some of its features were remarked on by Łukasiewicz in 1910, according to which Aristotle is proving this principle only for substance predicates, and that it is to be understood as the basic principle of metaphysics rather than of logic. It is the principle that every substance has an essential nature, and if it is of the essential nature of x to be F then it cannot be of the essential nature of x to be not- F since then x 's being F and x 's being not- F would be the same. He puts it by saying that in such a case F and not- F would 'signify the same' for x . Since they do not, x cannot be both.

IN BOOK Γ of the *Metaphysics* Aristotle presents and defends the basic principle of what he calls the science of 'being qua being' ($\tau\omicron\delta\ \delta\upsilon\nu\ \eta\grave{\nu}\ \delta\upsilon\nu$, 1003^a21). This principle has become known as *the law of non-contradiction* and is stated as follows:

For the same thing to hold good and not to hold good simultaneously of the same thing and in the same respect is impossible. (1005^b19, Kirwan's translation.)

In this paper I want to advocate an interpretation of this principle and its 'proof' that I got from Elizabeth Anscombe (Anscombe 1961, pp. 39–43.) I shall therefore call it the *Anscombe interpretation* though some of its features were remarked on in Łukasiewicz 1910. To understand the Anscombe interpretation we first need to recall that for Aristotle the most ontologically real things in the universe are *substances*. A substance is an independently existing thing which has an essential nature. Thus Socrates is by nature human. A human is what he *is*, and if he ceases to be human he ceases to exist. In order to be human Socrates need do nothing more than be himself. But Socrates may also be white or musical. To be white Socrates must have a whiteness in him. He cannot be white just by being himself. The whiteness of Socrates is often described as an *accident* of Socrates.

The law of non-contradiction is concerned with the application of a predicate to a substance. On the Anscombe interpretation we must make a distinction between predicates which say what a substance *is* (substantial predicates) and predicates which say something about a substance. A predicate like *human* or *animal* applies to Socrates directly. For Socrates to be human or to be an animal is no more and no less than for him to be Socrates. We can now state the Anscombe interpretation of Aristotle's argument for the law of non-contradiction. Suppose that F and G are two substance predicates applied to a substance x . If F and G are both substance predicates and x is both F and G then x 's being F and x 's being G are the same fact. In Aristotle's technical language F and G 'signify the same' for x . (See also Lear 1980, pp. 104–109.) So if *man* and *not-man* both apply to x then *man* and *not-man* would signify the same. But *man* and *not-man* don't signify the same, so x cannot be both a man and not a man. Put generally, if F and *not-F* are both substance predicates applying to x , then F and *not-F* would signify the same. But they don't and so they cannot both apply to x . On p. 41, having summarised what she takes to be Aristotle's argument, Anscombe writes, "This argument makes no sense except on the supposition that 'A' is a predicate in the category of substance, as is his actual example 'man'."

Although I have, following Anscombe, introduced 'signify the same' as a technical term, yet it links with what I take to be Aristotle's theory of meaning. I have argued in Cresswell 1987 that for Aristotle predicates are like proper names, so that a sentence like

(1) Max is human

is to be construed semantically in the same way as

(2) Max is Cresswell.

In both (1) and (2) the name *Max* may be used to apply to many different people, but in a particular utterance of (2) it designates one of the Max's. In (2) *Cresswell* denotes one particular Cresswell, and (2) is a statement of identity. (1) on the other hand would nowadays typically be analysed differently. *human* would denote something like the property of being human, or the class of all humans, or some other such universal, and (1) would be true iff the thing denoted by *Max* has that property, or is in that

class. But on what I take to be Aristotle's theory of meaning (1) is to be treated in the same manner as (2), but with this exception. In (2) *Cresswell* is an ambiguous name, and all that the many Cresswells whose name it is have in common is that *Cresswell* is their name. In (1) for Aristotle *human* is still an ambiguous name, but unlike the Cresswells, which are merely homonyms (as he puts it in Chapter 1 of the *Categories*) having merely the name *Cresswell* in common, the humans are all conspecific; and so *human* is a genuine universal.

The point of this excursion is simply that since for Aristotle *human* is a *name*, albeit one which has tight restrictions on its application, the only *meaning* that *human* can have is the bearer of the name. So that in (1) the meaning of *human* is just whichever Max is being spoken of. Of course in

(3) Socrates is human

the meaning of *human* is Socrates, and so on. For that reason we could rephrase the argument by saying that if x is F and x is G and both F and G are substance predicates then F and G mean the same. This would mean that when we say that Socrates is both a man and an animal then *man* and *animal* mean the same.

With this in mind we can express Aristotle's argument as follows:

(4) If F and G are both substance predicates, then if x is F and x is G , F and G mean the same (they mean x).

(5) F and *not- F* never mean the same.

∴

(6) No x is both F and *not- F* .

The argument is valid provided F and *not- F* are both substance predicates.¹ The question is whether it is Aristotle's argument. What I propose to do is go through the text in an attempt to shew that this is indeed

¹ It has been noted that in many cases where F is a substance predicate, as say *human* Aristotle probably thinks that *not- F* is not a substance predicate. (The point is made by Priest 1998, and was also made by a referee for *Theoria*.) It is important to bear in mind (as I point out in Appendix II) that the argument here is a reductio argument. Aristotle is attempting to shew that a contradiction arises from the assumption that F and *not- F* are both substance predicates. So there is no reason why he need assume that F and *not- F* ever can be both substance predicates. They certainly can never both give the substance of any single thing.

Aristotle's argument. If it is Aristotle's argument then the law of non-contradiction emerges not so much as the basic principle of *logic* but rather as the basic principle of metaphysics – Aristotle's science of being qua being. For what it says is that the world comes to us composed of substances with essential natures, and if it is of the nature of x to be F then it is impossible for x not to be F , and this is clearly something that could be denied by a person who believed in the logical law of non-contradiction. Such a person could say that although, for instance, a thing could never (at the same time and in the same respect) be both white and not white, yet something which is white could easily become not white. Aristotle might well agree with respect to *white*, but not, say, with *human*. Not only could essentialism be denied, but there is a tradition in presocratic philosophy in which it *was* denied. One way of interpreting Heraclitus is to say that he thought that every time you try to say what something *is* you could equally well say that it is not that. In Plato's *Republic*, the world of the senses, beloved of the lover of sights and sounds, is held to be unknowable because whatever something is it could equally well not be.²

Aristotle thought such views were mistaken and on the Anscombe interpretation it is the purpose of *Metaphysics* Γ to establish this. $\Gamma 1$ and $\Gamma 2$ are concerned to establish that there is a science of being qua being, a science whose purpose it is to enquire into the nature of what it is to *be*. Not into what it is to be some particular kind of thing – that is the job of one of the special sciences about things of that particular kind, animals, mathematical figures or what have you – but about what it is to be anything at all. $\Gamma 3$ asserts that if there is such a science then it must have a basic principle. And the basic principle is that things have essential natures, and that whatever is a part of a thing's essential nature is something that that individual cannot fail to be.

Lukasiewicz 1910 p. 58 observes

Thus we must conclude that, in Aristotle's view the Law of Contradiction is to be construed not as a universal logical law, but as a metaphysical truth which holds primarily

² I am taking it here that if the law is restricted to substance predicates it shews that an x which is F cannot fail to be F , i.e. it is essentially, or necessarily F . Put in modern terms there is a *de re* claim about the law. Still, as Anscombe 1961, p. 44 remarks, "There appears to be a confusion in Aristotle between: 'Necessarily (if p then not-not- p),' and 'If p , then necessarily (not-not- p).'" In the case of a substance predicate, F and necessarily- F are equivalent, but still Aristotle does not shew a clear awareness here of these two different claims.

of substances and whose application to the world of appearances is at least dubious.

(One should presumably take Łukasiewicz's reference to the 'world of appearances' as a reference to the accidental properties of substances.) Any argument of course, as Łukasiewicz notes on p. 56f, presupposes logic, and one advantage of the Anscombe interpretation is that Aristotle is not attempting to establish principles of correct reasoning. He is assuming them. As a law of logic the propositional principle $\sim(p \wedge \sim p)$ would be thought merely one among many, and not even the most certain. For instance Priest 1998 observes that the law of identity, $p \supset p$, might be thought more certain than the law of non-contradiction, and Łukasiewicz, p. 59 quotes a passage in the *Posterior Analytics* (*An Post*, I, 77^a10–22) in which Aristotle appears to assume that the law of non-contradiction is not the most basic principle of logic. None of this is at all worrying on the Anscombe interpretation.

But now we come to the first problem. There is nothing in the statement of the law of non-contradiction which indicates that it is to be restricted to essential predicates. I shall not attempt to argue that Aristotle's statement of the law of non-contradiction *must* be interpreted as so restricted but I shall try to make plausible that nothing prevents it from being interpreted as so restricted. As far as I can tell the Greek is of little help. The word that Kirwan translates as 'applies to' is ὑπάρχειν, which is a word that Aristotle regularly uses to express predication. What can be said however is that the principle is not the propositional law of non-contradiction. In this form the principle should be stated as above as $\sim(p \wedge \sim p)$, where p is any proposition whatsoever. The principle that Aristotle states is about singular predication only. It is the principle that the same predicate cannot both apply and not apply to the same thing; and the question is whether this should be restricted to substance predicates.

If you think in the way we are inclined to do nowadays, that there is only one kind of predication but that some predicates apply necessarily but others only contingently, then you may well suppose that if Aristotle makes no reference to any restrictions then he must mean the law to hold for all predicates. But if you take seriously the idea that for Aristotle the difference between say *human* or *animal* on the one hand, and *white* or *musical* on the other is that while the former apply directly to Socrates the latter apply to him only indirectly (*paronymously* as he puts it in the *Categories*) in virtue of the whiteness in him, then the law of non-contradiction can be seen to be unrestricted in respect of predicates which apply to

Socrates himself because of what he is.³ As I said the statement of the law does not *force* the restriction to substantial predicates, but it is, I would argue, compatible with it, and, as I will go on to shew, the ‘proof’ of the law depends upon it.

In saying that the law is restricted to substance predicates I have in mind that it is restricted to predicates which say what something *is*, rather than saying something about it. Thus *man* says what Socrates *is*, while *white* says something about him. He is white because he has a whiteness in him, not because of what he is himself. But of course one could also ask what a whiteness is, and an answer to that question might be thought to give the substance of white. Dancy, 1975, p. 109f gives many examples of passages where Aristotle speaks of the ‘substance’ of things which are not substances, and Ross 1995, in a careful study of the notion of signifying one thing, makes a strong case that a term which signifies one thing might well signify the essence of something which is not a substance. So in that sense the law of non-contradiction might indeed apply to all predicates, even accidental ones. Not in the sense of establishing that Socrates could never be both white and not white, but perhaps in the sense of establishing that a whiteness could never be both a whiteness and not a whiteness. In this sense a substantial predicate would be any predicate used to say what something (essentially) is, rather than to say something about it, whether or not that thing is a substance. It does seem however, as I will go on to shew, that Aristotle does not appear to have in mind the application of the law to the ‘substance’ of non-substances. Dancy 1975, p. 108 supposes that this might be because, unlike Socrates, qualities such as whitenesses come in degrees, and so for that reason *white* would not signify one thing.⁴

³ Gary Matthews has pointed out to me that there is no mention of ‘at the same time’ in Aristotle’s statement of the necessary qualifications to the law. If *F* is a substance predicate then if *x* is *F* at one time it cannot become *not-F* at a later time since if *F* is essential to it it would then have ceased to exist. (Aristotle does use the word ἄμα which Kirwan translates as ‘simultaneously’, but ἄμα could equally be translated as ‘at once’ or ‘together’, in which a literal time reference need not be understood. Matthews points out that, in the rather different context of *Sophistical Refutations* 167^a27f, Aristotle uses ἐν τῷ αὐτῷ χρόνῳ instead of ἄμα.)

⁴ Wedin 1982 derives the principle that Socrates can never be simultaneously white and not white from the supposition that that would require that Socrates have in him something which is both a whiteness and not a whiteness. I am a little reluctant to accept this account since it seems to depend on analysing Socrates’ not being white as his having in him something which is not a whiteness. But Socrates can have many such things in him and still be white.

Aristotle's first point (1005^b35–6^a10) is that there is a sense in which the law cannot be demonstrated. At least not if demonstration proceeds by moving from the firmest of all principles to something less firm. Nevertheless he thinks that it is possible to demonstrate negatively. This takes the form of shewing that someone who denies the law does not succeed in saying anything. Presumably a genuine demonstration would establish the principle independently of what someone says who denies it, while a negative demonstration must be expressed in terms of what someone says. Of course Aristotle recognises that in a sense one can deny the law. At 1005^b26f he distinguishes between what people say and what they believe. But the argument is intended to shew that in another sense we cannot say that anything is both *F* and *not-F* – in the sense that when we appear to do so we do not signify one thing by our words. He imagines an opponent, presumably someone who denies the law of non-contradiction, who is asked to say something meaningful – not to say that anything is either so or not so, but simply to use a term meaningfully. (1006^a21) So suppose that the opponent says *man*. Here we must recall Aristotle's theory of meaning. For Aristotle *man* is a universal – something which can be applied to many things provided that they are all conspecific. So if *man* is to be used meaningfully it must be used to apply to something, say Socrates, which is a man. The opponent is not held to be asserting that Socrates is a man, but merely to be using the word meaningfully – using it to signify one thing. The word *human* then refers to Socrates and not to anyone else. (It could of course equally well refer to other things – though presumably not to everything, if that is what is going on at 1006^a28–30.) At 1006^a31–33 he makes clear what 'signifying one thing' (τὸ ἕν σημαίνειν) amounts to:

if that thing is a man then if anything is a man that thing will be to be a man (or 'for a man to be', τὸ ἀνθρώπων εἶναι)

What does this mysterious sentence mean? Assume that *man* is a substance predicate. Then, given that anything (e.g. Socrates) is a man, for it being a man is just being it. So it itself is (for it) just what it is to be a man. One possible objection might be that the opponent might choose a term like say *unicorn* which applies to nothing. Such a term is presumably meaningful, but would not have a signification on the naming semantics. Dancy on p. 81 alludes to *De Int* 4, 16^b26–30 as a recognition by Aristotle that words can be significant even though there is nothing which they

denote. (See also the discussion of ‘goatstag’ in Lear 1980, p. 106n15.) However this does not I think constitute an objection to the argument. For the argument, recall, is to shew that where F is a substance predicate then no x can be both F and $not-F$. Where F is like *unicorn* in applying to nothing then there is no x which is F , and so the possibility of contradictory predicates applying cannot even get started.

We next have an elucidatory passage in which Aristotle imagines a person using the word *man* in several senses. If these senses are all definite (ὀρισμένα) then we may take each sense in turn, while if there is no definite sense then nothing is said. So assume that *man* applied to Socrates signifies just what Socrates is (e.g. that he is a two-footed animal). The next point (1006^b13) is that *man* and *not-man* do not signify the same thing. Then comes a parenthetical remark (1006^b15–18) to the effect that by ‘signifying one thing’ he does not mean signifying about a single subject (καθ’ ἑνὸς σημαίνειν). This might seem strange until we recall that for Aristotle *man* is a name whose meaning is the man about whom *man* is predicated. If predicating is naming then it might seem that *any* predicate true of Socrates would signify Socrates. Thus if Socrates is not only a man but also white and musical then *man*, *white* and *musical* would all signify the same, and would all have the same meaning. But that is not so since although Socrates may be musical, musical is not what he *is*. For him to be musical is not for him to be himself – it is for him to have a musicalness in him.

Next (1006^b18–22) Aristotle considers someone who says that *man* and *not-man* do mean the same. Well, of course it might happen that what we term *man* others term *not-man*; but that is not what a denier of the law of non-contradiction is denying. Clearly if you use *man* to mean what I mean by *not-man* then the same thing could easily be both a man (in my sense) and a not man (in your sense) – or not a man, since, interestingly at 1007^a24 and again at 1007^a28f Aristotle appears to treat ‘to be a not man’, μὴ ἀνθρώπων εἶναι, and ‘not to be a man’, μὴ εἶναι ἀνθρώπων, synonymously. Then occurs a section (1006^b28–34) in which the conclusion is stated in explicitly modal terms. If Socrates is a man and if *man* means, say, *two footed animal*, then *man* or *two footed animal* say just what Socrates is, and that is something that he must be and cannot fail to be – since the fact that something must be so is simply the fact that it cannot fail to be so. Thus the law of non-contradiction is established.

On the Anscombe interpretation the proof is now over, and the rest of

the chapter consists in the drawing out of its consequences and the examination of why and how people have denied the law. His first point is that if the opponent were to offer *not-man* as the meaningful term then the argument would apply as before. Since *not-man* would not signify the same as *man* then they could not both be what Socrates is. But the passage continues, and the thought appears to be something like this. Perhaps there *is* a sense in which something *could* be both a man and not a man. For Socrates is a man but is also musical, and to be musical is not to be a man. He considers an opponent who says that *not-man* might be like *white*, since *white* does not signify the same as *man* and yet Socrates is both a man and white. Aristotle's reply seems to treat *white* as a kind of *not-man*. What he says is this. If you were to offer *not-man* as if it were like *white* in an attempt to say that it is something true of Socrates but which does not mean the same as *man* then you would not be answering the question. Why would this be? Well, you would not be giving a word which is supposed to mean just what Socrates is. You would make the mistake of thinking that in being asked to provide a term which signifies Socrates it would be sufficient to provide a term which signifies something *about* Socrates. In saying that Socrates is white the word *white* signifies directly (presumably) the whiteness in Socrates, and only derivatively (paronymously) applies to Socrates. So the person who answers in this way fails to provide an answer which 'signifies one thing'. If we allow *white* as an answer to the question of what Socrates is then it seems that he could be 'a thousand times a man and not a man' (1007^a16) but this would be irrelevant to the question asked since none of these terms which apply to Socrates accidentally, says what he is by his own nature.

What then would the person who offers this reply be getting at? Well, presumably that things do not have essential natures, and so *all* that you could be doing in saying what something is would be saying something about it. So those who deny the law of non-contradiction would 'entirely eliminate substance and what it is to be'. (1007^a20) For if there is a 'what it is to be' of anything then *F* and *not-F* cannot both be this – that is what has been proved. And of course the tradition that Aristotle is setting himself against might plausibly be understood as precisely the denial that things have essential natures.⁵

⁵ Later in Γ Aristotle attempts to explain what might have led his predecessors to deny the law of non-contradiction. He thinks the views of Protagoras in particular arise from a con-

But that in turn would mean that everything is *in* a subject, while nothing *is* a subject. And that he holds to be impossible. For the only way it could happen would be if every accident is in another accident, and that, he tells us at 1007^b1, would require an infinite regress. In fact he thinks that no accident can be in another accident. The argument of this section of course presupposes Aristotle's account of accidental predication, and it is doubtful that those who deny that things have essential natures (as for instance Plato does in the *Republic*) would accept Aristotle's account of accidental predication. Still, on Aristotle's account the argument in 1007^a33–^b15 establishes that you can't have accidental predicates unless you have predicates which apply to substances, and of these latter we have shewn that the law of non-contradiction applies.

One could of course imagine an opponent offering *white* as a term which signifies Socrates' *whiteness*. But if *white* were offered as signifying the whiteness in Socrates then the argument would be that *not-white* could not also be so offered, and the proof would go through as before. However, as I have mentioned earlier, it is not clear that Aristotle does have this possibility in mind. For when he speaks of the terms involved in the law of non-contradiction he says at 1007^a25–27, 'It signified the substance of something'. Now one perhaps *could* use this phrase to refer to the 'substance' of white (what a whiteness is) but that can hardly be the meaning of this passage since his purpose here is to shew that the deniers of the law of non-contradiction are committed to not admitting substance – and so not admitting the possibility of an opponent using a word (like *man*) to signify a substance.

The next section begins (1007^b18) by discussing what will happen if *all* contradictories are true of everything, and this seems a different issue. For it is surely an envisageable position that although *some* contradictions may be true not all are. One response is to say that Aristotle's historical opponents believed that all contradictions are true. In fact this is along the right lines, but if we accept the Anscombe interpretation we can see that this section does not involve a shift after all. For suppose the law of non-

centration on sensible features of changing particulars. Gottlieb 1992 sees a parallel with Plato's arguments against Protagoras at the beginning of the *Theaetetus*, and Brinkmann 1992, p.203 sees Aristotle's argument in the present passage as "not directed against Protagoras, but against those who transformed the Protagorean doctrine into what I shall call accident phenomenalism."

contradiction is the principle that the world is composed of things that have essential natures, and that where F is a part of x 's essential nature then it is impossible that x should not be F . What would it be to deny *this*? Well, presumably it would be to say that *nothing* has an essential nature; and this was typically put by saying that *every* time you might try to say what x is by saying that it is F you could equally have said that it is not F . Aristotle's objection to this way of construing things is that if F and *not-F* are always equally applicable to x then F cannot have a definite meaning. Presumably the intuition here is that the predicate F can only have a definite meaning if there is something it rules out. But if F and *not-F* are equivalent there will be nothing they rule out. This may be why Irwin 1988, p. 181 takes Aristotle's opponent to claim "that for any subject and any of its properties it is possible for the subject to have both the property and its negation." Irwin's version of the proof of the law of non-contradiction is then that for the same x to be both F and *not-F* there must be some (essential) property G which identifies the x in question, and is such that x cannot fail to be G and remain in existence, and that this property G is what x must have throughout the change from F to *not-F*. Otherwise there would be no subject of change and therefore no change. And Gotlieb 1992, p. 195, associates 'signifying one thing' with "using a term, for example 'man', which is associated with a definition which identifies the essential nature of something, for example, 'biped animal'."

The rest of book Γ , up to the discussion of the law of excluded middle in $\Gamma 7$, attempts to explain why his predecessors were led to deny the law of non-contradiction and just what their mistake consisted in. Typically he appears to have in mind people who believe that F and *not-F* hold of everything – or even that being F is *equivalent* to being *not-F*. Fascinating as these sections may be they are not the heart of his proof of the law of non-contradiction, and it is this proof that I have been concerned to expound.

Appendix I

The Class Interpretation

In this appendix I shall reconsider the naming theory of predication. It would not be plausible to expect an explicit defence of this in Aristotle. For such a defence would demand that Aristotle is clearer about predica-

tion than I believe he is. Gary Matthews has pointed out a number of problems with the naming theory. Here is one of them. Consider the following case. One of my brothers is a composer. Suppose that a number of people are talking about the composer Cresswell and wonder if he is anyone they know. Someone utters (2). Surely they have spoken falsely. They can be corrected by saying

(7) Max is not Cresswell

In (7) *Cresswell* refers to my brother Lyell, and the current falsity of (2) and truth of (7) does not contradict the truth of (2) when *Cresswell* refers to me. It is in fact a consequence of the multiple ambiguity of (2) that it can be true for some readings and false for others. So consider (1). What if it is Socrates who has been under discussion? What if (1) is offered when *human* has *that* meaning? Then (1) is false. Yet I think we would never allow (1) to be false for that reason. Some cases of false statement can be ruled out by the observation that *human*, being a genuine universal for Aristotle, must be used only for things which are conspecific. So

(8) Bucephalus is human

would have to come out as false since *human* cannot be the name of a horse. But the two readings of (1) are not cases of this kind since Max and Socrates are both human.

Matthews has pointed out (in conversation) that late mediaeval terminist logicians would read (1) in such a way that *human* is existential, i.e. as

(9) Socrates is identical with at least one human

Thus for instance in Ockham's *Summa Logicae* Part II, Chapter 2, Ockham claims that when it is asserted that Socrates is a man or an animal

it is asserted that he is a thing for which the predicate 'man' or 'animal' stands or sup-
 posits. For both of these predicates stand for Socrates. (Freddoso, 1980, p. 87.)

This account does demand a semantic analysis of quantification, and it is not obvious that Aristotle was as clear about this as he might be. In the *Prior Analytics* his standard way of expressing such things as

(10) Every *A* is *B*

or

(11) Some A is B

is

(12) B can be predicated of every A

or

(13) B can be predicated of some A

which seems to make quantified statements parasitic on statements of singular predication. Still, why not suppose that Aristotle somehow has an account of quantified statements. Let us see how the argument fares. The key premise, (4), now becomes

(14) If F and G are both substance predicates then if x is identical with at least one F and x is identical with at least one G , F and G mean the same.

In (14) I have left off ‘they mean x ’ which occurs parenthetically in (4), since (14) is designed precisely to avoid the suggestion that a predicate is the proper name of an individual. For that reason we have to find some other justification for (14). One simple alternative to a theory which says that *human* ambiguously names individual humans is a theory according to which it denotes the class of humans. On this alternative (14) seems clearly false. For x could easily belong to many different classes.

The ‘class’ view can be partially salvaged by recalling that the key feature of the Anscombe interpretation is that the predicates are restricted to substance predicates which say what x *is*, as opposed to saying something about x . And it is clear from 1006^b15–18 and 1007^a5–7 that whatever Aristotle means by ‘signifying one thing’ he does not mean ‘signifying about one thing’. However the salvage is only partial since it seems possible to have overlapping classes marked off by essential predicates. One example would be *man* and *animal*. Socrates is not only human, he is also an animal. Yet the class of humans and the class of animals are distinct. (There is some evidence that for Aristotle the only cases of overlapping substance predicates are where one term is included in another – this is because of his views on the hierarchical nature of definitions.) On the naming view one can simply say that in (3) and in

(15) Socrates is an animal

human and *animal* mean the same since both mean Socrates. But one can-

not say this on the class view. For (14) to be defensible on the class view one would have to assume that F and G are more than merely predicates signifying something essential to x . One would need to take 'signify one thing' as indicating a complete statement of what x is, in other words a definition of x . The argument would then run that if F and G both signify completely what x is then F and G mean the same. Let us write $x \approx y$ to mean that x and y are *consppecific*. (I use the word 'consppecific' rather than the phrase 'in the same species' to avoid the suggestion that in Aristotle's ontology there are such things as species in addition to the way individuals are related.) Then F will be a predicate which 'signifies one thing' iff

(16) If x is F then for any y , y is F iff $x \approx y$.

In other words F applies only to things which are conspecific, and to all the things which are conspecific with any given F . For Aristotle's argument to work \approx must be what logicians call an *equivalence relation* – i.e. it partitions things into equivalence classes (strictly \approx -equivalence classes, since they depend on \approx) in such a way that nothing is in more than one class. From this it follows that if x is both F and G , and F and G are both substance predicates then, since x is in at most one \approx -equivalence class, if F and G both refer to such a class of which x is a member then they must refer to the same class, and so, on the class theory, F and G must mean the same.

On the class theory Aristotle's argument is valid provided that 'signifying one thing' is analysed in terms of an equivalence relation. The argument would work for any equivalence relation, even one based on accidental features. But of course such a relation would not be a relation of conspecificity. If Aristotle's 'proof' of the law of non-contradiction is to establish, as I have argued it is intended to, that things have essential natures which it is impossible that they lack, then the relation of conspecificity must not only be an equivalence relation, so that everything is in at most one species; it must also be *necessary* that things which are conspecific are so. It may be objected (as Fred Feldman did in conversation) that this makes the argument question begging, since (14) will establish essentialism, on the class interpretation, only if essentialism is already presupposed.

I am in fact in sympathy with Feldman's objection. One frequently finds that Aristotle, when discussing opposing positions, states them in his own terms. I have already mentioned his argument that not every-

thing can be accidental, and it would not surprise me if the present proof assumed, in the account of 'signifying one thing', that there was an appropriate equivalence relation which held of things by necessity. In fact I believe that Aristotle thought of it as a kind of identity, and in earlier work I have referred to it as specific identity. While this may lessen the force of his argument for the law of non-contradiction if an argument for essentialism is required by those who do not accept the picture of the world that Aristotle does, it is I believe how the argument would have to go on the class interpretation. Even on the naming interpretation substance predicates are distinguished as those names which apply directly to substances. These are names that are used synonymously, and that means being used to apply throughout a single species. The force of the objection may be lessened a little by recalling that Aristotle is undertaking what he calls a 'proof by refutation' (1006^a15, ἐλεγκτικῶς). While the structure of such a proof may not be completely clear, one way of taking it is that it is a proof that the denier of the law of non-contradiction is all the while assuming the law; and if this is what is going on then it is perhaps less unreasonable for Aristotle to assume his (Aristotle's) own ontology in giving an account of what the opponent is in fact doing.⁶

I have set out the class interpretation of the argument as an alternative to the naming account. The class interpretation gives an account of predication which is perhaps more acceptable than the naming account, which suffers from the problems I mentioned at the beginning of this appendix, and which should therefore not lightly be attributed to Aristotle. The class interpretation does however require that for instance, while *man* may signify one thing *animal* does not, and so the issue is not absolutely clear. I still incline to the naming semantics as driving the proof of the law of non-contradiction, even if this commits Aristotle to a problematic account of predication. But the class semantics is equally available for

⁶ Beyond this I have little to say on the controversial issues discussed by Code, Cohen and Furth in the 1986 *Canadian Journal of Philosophy*, of whether, as Irwin 1977 claims, Aristotle is announcing a completely new method of proof in metaphysics, or whether, as Code claims, he is trying to prove, not the law of non-contradiction itself, but only, with the aid of the law of non-contradiction, that it is the most basic of principles. For what it is worth, my (extremely tentative) view on such issues is that in *Metaphysics* Γ Aristotle is not so much practising the science of being qua being as he is engaging in reflections about it at a meta level. Irwin 1988 p. 547n2, who disagrees with this kind of view, citing 1005^a29–31, calls it the 'preparatory view' and cites Ross, 1924, p. 252 and Frede 1987.

the defender of the Anscombe interpretation. The view that should *not* be attributed to Aristotle is that a word like *man* might stand for some kind of universal man. For one of Aristotle's continual complaints about such Platonic entities is that their introduction simply adds to the universe things which do no work.

Appendix II Priest on Aristotle

Priest 1998 discusses the Anscombe interpretation and rejects it. As he notes, even if the Anscombe interpretation is accepted his own project – of shewing that Aristotle does not succeed in establishing the law of non-contradiction as a logical law – is not affected. With that I agree, since, on the Anscombe interpretation, the law of non-contradiction is not a principle of logic, and its proof presupposes the laws of logic, and does not establish any of them.

Priest's first reason against the Anscombe interpretation is one I have already considered – that the statement of the law at 1005^b19 does not appear restricted to essential predicates. Priest argues that the statement of the law repeated at 1007^b17 indicates that Aristotle is trying to establish that it holds in general. I am not sure that this repetition helps Priest's case. Aristotle has just been arguing that you cannot have words signifying accidents *unless you have words signifying substances*. And the sentence in question states that 'if that is so it has been shewn that it is impossible to predicate contradictories simultaneously'. This must surely mean that the law of non-contradiction has been shewn to hold in the case of predicates which signify substances rather than their accidents. So in my view this restatement in fact supports the Anscombe interpretation.

Priest's second reason is that it makes 1006^b28–34 not part of the main argument. I have already claimed that this passage is simply a restatement of the conclusion in modal terms. Priest however follows Dancy in calling this passage 'the clincher' and considers it central. Priest claims that the Anscombe interpretation at this point needs a premise not found in the text. In fact (4). I have tried to make plausible how this premise fits into Aristotle's theory of predication, and in fact I would argue that his careful discussion of the difference between 'signifying one thing' and 'signifying about one thing' is designed to supply this premise.

Priest's third and final reason against the Anscombe interpretation is that it appeals 'to premises that are false for Aristotle' – in fact the premise that *not-man* is a substance predicate. Certainly, as pointed out on p.244 of Irwin 1982, Aristotle sometimes speaks of negative names as indefinite. (Irwin cites *De Int* 16^a29–31.) Thus, *not-man* can indefinitely refer to anything that is not a man. Thus for instance, a particular utterance of *not-man* might be used to signify *white*, or any other accident, so that a man could be 'a thousand times' a not man, as we find at 1007^a16. One thing however it could not mean is *man*, and on the Anscombe interpretation the argument is a *reductio ad absurdum* designed to shew that *man* and *not-man* cannot both express the substance of anything. So if, as Aristotle believes, *man* does express the substance of *x* then, on the Anscombe interpretation, *not-man* cannot also. So, of course Aristotle would not believe that *man* and *not-man* are both essential predicates applying to the same *x*. That is precisely what, on the Anscombe interpretation, the proof of law of non-contradiction is intended to shew.

References

- ANSCOMBE, G. E. M., and P. T. GEACH, 1961, *Three Philosophers*, Oxford, Basil Blackwell.
- BARNES, J., 1975, *Aristotle's Posterior Analytics*, Oxford, Clarendon Press
- BRINKMANN, K., 1992, Commentary on Gottlieb. *Proceedings of the Boston Area Colloquium in Ancient Philosophy*, Vol 8, pp.199–209
- CODE, A., 1986, Aristotle's investigation of a basic logical principle: which science investigates the principle of non-contradiction? *Canadian Journal of Philosophy*, Vol 16, pp.341–357
- COHEN, S. M., 1986, Aristotle on the principle of non-contradiction. *Canadian Journal of Philosophy*, Vol 16, pp.359–370
- CRESSWELL, M. J., 1987, Aristotle's Phaedo. *Australasian Journal of Philosophy*, Vol 65, pp.131–155.
- DANCY, R. M., 1975, *Sense and Contradiction in Aristotle*, Dordrecht, Reidel.
- FREDE, M., 1987, The unity of general and special metaphysics: Aristotle's conception of metaphysics *Essays in Ancient Philosophy*, Oxford, Oxford University Press, 1987, pp.81–95
- FREDDOSO, A. J., 1980, *Ockham's Theory of Propositions: Part II of the Summa Logicae*, Notre Dame, University of Notre Dame Press.
- FURTH, M., 1986, A note on Aristotle's principle of non-contradiction. *Canadian Journal of Philosophy*, Vol 16, pp.371–381.
- GEACH, P. T., 1972, *Logic Matters*, Oxford, Basil Blackwell.

- GOTTLIEB, P., 1992, The principle of non-contradiction and Protagoras: the strategy of Aristotle's *Metaphysics IV 4*. *Proceedings of the Boston Area Colloquium in Ancient Philosophy*, Vol 8, pp.183–198.
- IRWIN, T. H., 1977, Aristotle's discovery of metaphysics. *Review of Metaphysics*, Vol. 31, pp.210–229
- IRWIN, T. H., 1982, Aristotle's concept of signification. *Language and Logos: Studies in Ancient Greek Philosophy presented to G.E.L. Owen*, Cambridge, Cambridge University Press, pp.241–266.
- IRWIN, T. H., 1988, *Aristotle's First Principles*, Oxford, Clarendon Press
- KIRWAN, C., 1971, *Aristotle, Metaphysics, Books Γ, Δ, E*, Oxford, Clarendon Press.
- LEAR, J., 1980, *Aristotle and Logical Theory*, Cambridge, Cambridge University Press.
- ŁUKASIEWICZ, J. 1910, Aristotle on the law of contradiction. *Articles on Aristotle: Vol III, Metaphysics*, (ed. J.Barnes, M. Schofield and R. Sorabji) London, Duckworth, 1979
- PRIEST, G., 1998, To be *and* not to be – that is the answer. On Aristotle on the law of non-contradiction. *Philosophiegeschichte und Logische Analyse*, Vol 1, pp. 91–130.
- ROSS, M. L., 1995, Aristotle on 'signifying one' at *Metaphysics Γ4*. *Canadian Journal of Philosophy*, Vol 25, pp.375–393
- ROSS, W. D., 1924, *Aristotle's Metaphysics*, Oxford, Oxford University Press.
- WEDIN, M.V., 1982, Aristotle on the range of the principle of non-contradiction. *Logique et Analyse*, no 97, pp.87–92